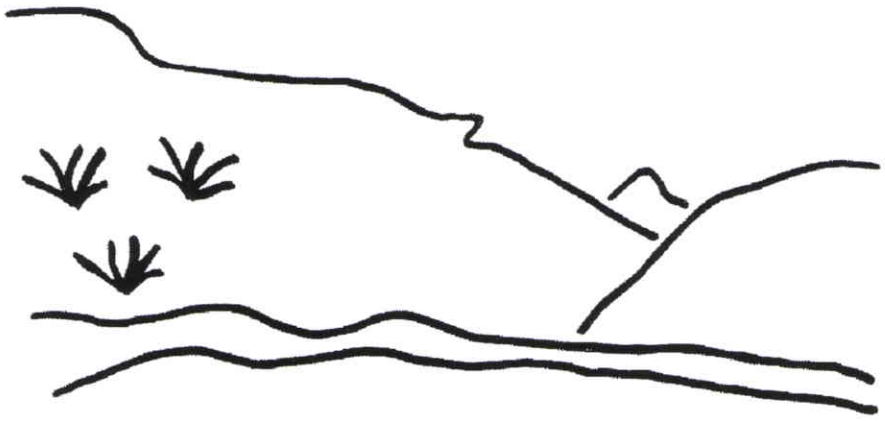
State of Utah



Utah Oil Gas and Mining

Coal Regulatory Program

Bear Canyon Mine
Co-Op Mining Company
Technical Analysis
January 9, 2006

Mine # C/015/0025
File OUTGOING
Record # 0002
Doc. Date 1/25/06
Recd. Date 1/25/06

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TECHNICAL ANALYSIS DESCRIPTION

The Division ensures that coal mining and reclamation operations in the State of Utah are consistent with the Coal Mining Reclamation Act of 1979 (Utah Code Annotated 40-10) and the Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87). The Utah R645 Coal Mining Rules are the procedures to implement the Act. The Division reviews each permit or application for permit change, renewal, transfer, assignment, or sale of permit right for conformance to the R645-Coal Mining Rules. The Permittee must comply with all the minimum regulatory requirements as established by the R645 Coal Mining Rules.

The regulatory requirements for obtaining a Utah Coal Mining Permit are included in the section headings of the Technical Analysis (TA) for reference. A complete and current copy of the coal rules can be found at http://ogm.utah.gov

The TA is organized into section headings following the organization of the R645-Coal Mining Rules. The Division analyzes each section and writes findings to indicate whether or not the application is in compliance with the requirements of that section of the R645-Coal Mining Rules.

GENERAL CONTENTS

IDENTIFICATION OF INTERESTS

Regulatory Reference: 30 CFR 773.22; 30 CFR 778.13; R645-301-112

Analysis:

Chapter 2 provides information ownership and control of the Bear Canyon Mine. The Permittee is Co-Op Mining Co. (also known as C.W. Mining Co.), a Utah corporation located in Salt Lake City (p. 2-3). C. W. Mining Co. is registered with the State of Utah to do business as (DBA) Co-Op Mining Company. [09152005]

The federal identification number for C. W. Mining Co. is 87-0399230. The last names and initials of the Officers and Directors of C.W. Mining Co. are provided along with their addresses and titles. C.W. Mining Co. will pay the abandoned mine fee.

Co-Op Mining Co. also held Utah coal mining permit C/015/021for the Trail Canyon Mine. Trail Canyon Mine received final bond release on December 29, 2000.

By definition, the owner of the coal lease is presumed to have ownership or control over the Lessee (see R645-100-200. Definitions) and therefore R645-301-112.400 requires that the Permittee provide ownership and control information for the coal leaseholder, unless no controlling interest can be demonstrated. The Permittee has provided the officers and directors of C.O.P. Coal Development Co., the coal lease owner, but has also indicated that the company has no control over C.W. Mining. [09152005]

The current plan includes MSHA numbers for the Bear Canyon No. 1 and No. 2 Mines, and the application shows an MSHA number for the facilities at the Bear Canyon No. 3 Mine. The MSHA number for the Bear Canyon No. 4 Mine is listed as MSHA 42-02335, (See Chapter 1, Section 112.700, page 1-7 of the MRP). [01092006]

Findings:

The information provided meets the minimum identification of interests requirement of the regulations.

VIOLATION INFORMATION

Regulatory Reference: 30 CFR 773.15(b); 30 CFR 773.23; 30 CFR 778.14; R645-300-132; R645-301-113

Analysis:

Appendix 2-A of the MRP (Appendix A-1 of the reformatted MRP) contains current information on violations issued by DOGM. [09152005]

Findings:

The information provided in the application meets the violation reporting requirements of the regulations.

RIGHT OF ENTRY

Regulatory Reference: 30 CFR 778.15; R645-301-114

Analysis:

Right of entry to the subsurface was secured by C. O. P. Coal Development Co. through lease assignments and lease agreements found in Appendices 2-B and 2-F. C. O. P. Coal Development Co. is the owner of record of fee ground and federal coal leases 024316, 024318, U-020668 and U-38727 within the permit area. CO-OP Mining Co. leases the fee and federal coal from C. O. P. Coal Development Co (letter dated January 1, 2001 in Appendix 1B. [09152005]

The legal description of the lease area provided in Appendix 2-F does not include the NE1/4 of the NE1/4 of section 24, T. 16 S., R. 7 E. However, right of entry was specifically granted by the BLM in a letter from James Kohler, Bureau of Land Management Chief, Solid Minerals, to the Division, dated February 9, 2005. [09152005]

Findings:

The information provided in the application meets the right of entry requirements of the regulations.

LEGAL DESCRIPTION AND STATUS OF UNSUITABILITY CLAIMS

Regulatory Reference: 30 CFR 778.16; 30 CFR 779.12(a); 30 CFR 779.24(a)(b)(c); R645-300-121.120; R645-301-112.800; R645-300-141; R645-301-115.

Analysis:

Section 2.2.2 of the application contains a legal description of the current permit area and the proposed addition. Table 2-1 lists property ownership in and contiguous to the current and proposed addition to the permit area. This information and the legal description in Section 2.2.2 correspond with the information on Plates 2-1 and 2-2. [09152005]

The proposed operations will not be within 100 ft of a public road or within 300 ft of an occupied dwelling. The existing mine is within 300 ft of occupied dwellings, but the plan contains approval letters from the owners and renters of these buildings.

According to the current mining and reclamation plan, no portion of the area to be permitted is within an area designated as unsuitable for mining, and describes in some detail why it should not be considered unsuitable. The Division is unaware of any study or petition for designation as unsuitable.

Findings:

The information provided in the application meets the legal description requirements of the regulations.

PERMIT TERM

Regulatory References: 30 CFR 778.17; R645-301-116.

Analysis:

There are 3,375.62 acres within the permit area (Section 2.2.2). The permit area is shown on all maps and categorized by ownership of surface and minerals in Table 2-1. Plate 2-2 provides the key to understanding Table 2-1. The permit area has the following boundaries:

Township 16 South, Range 7 East, SLBM
sec 13: W1/4
sec 14: S1/2, NE1/4
sec 23: E1/2, E1/2 W1/2
sec 24: ALL
sec 25: ALL

sec 26: NE1/4 NE1/4, NW1/4 NE1/4, N1/2 SW1/4 NE1/4, and cherry stem of the mine access road through the SE1/4 NE1/4

Township 16 South, Range 8 East, SLBM
sec 19: S1/2 NW1/4, SW1/4, SW1/4 SE1/4
sec 30: W1/2, W1/2 NE1/4, NW1/4 SE1/4
sec 31: NE1/4 NW1/4, NW1/4 NE1/4

Disturbed area boundaries are shown on Plates 2-4, which are the surface facilities maps. The surface acreage disturbed by the mine encompasses approximately 40.46 acres. The disturbed acres are listed in Section 3.3.14 on Table 3.3-1, Surface Disturbance Summary.

The current permit was issued in November 1, 2000 and expires November 1, 2005. [09152005]

Findings:

The information provided meets the requirements for public notice and liability insurance requirements of the Regulations.

PUBLIC NOTICE AND COMMENT

Regulatory References: 30 CFR 778.21; 30 CFR 773.13; R645-300-120; R645-301-117.200.

Analysis:

Public notice is not required for an incidental boundary change. Previous publication affidavits are provided in Appendix 1-D. [09152005]

The current general liability insurance provides effective coverage for the permittee through January 1, 2005. An aggregate amount of $2,000,000 is provided for bodily injury and property damage; $1,000,000 is the amount of provided coverage for each occurrence. [09152005]

The Division received a request for an informal conference on January 27, 2000. The request was from J. Craig Smith and Scott M. Ellsworth of Nielsen and Senior representing the Huntington-Cleveland Irrigation Company. The conference was conducted February 22, 2000, and the MRP has been modified in accordance with requirements of the order resulting from that conference. [06072005]

Findings:

The information provided meets the requirements for public notice and liability insurance requirements of the Regulations.

FILING FEE

Regulatory Reference: 30 CFR 777.17; R645-301-118.

Analysis:

A filing fee was paid at the time of initial permit issuance.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

A reformatted, electronic version of the Bear Canyon MRP was approved in 2005. The Bear Canyon Mine is commended as the first in the State of Utah to provide a completely electronic version of their permit.

The .xls file included with the January 27, 2003 electronic copy of the submittal provides a cross reference for new and old plate numbers and provides new appendix numbers, but does not cross reference changes to the narrative. This technical analysis contains cross-reference charts for the narrative, appendices, tables and maps for information pertinent to soils of the site.

Soils information previously located in Chapter 8 and Appendices is now found in Chapter 2 and Appendices; consequently all the maps and table numbers begin with 2 (i.e. Plates 2-1A rather than 8-1 is the Main Area Soils Map). Cross-reference charts are key to the understanding of previous technical memos on the Bear Canyon Mining and Reclamation Plan.

The MRP-Part B meets the requirements of R645-301-121.100, R645-301-121.200, and R645-301-121.300 for the Biology Chapter and Archeology Section because the Permittee presents current, clear, and concise information that follows Division format.

Outside materials are cited throughout Chapters 6 and 7. A bibliography has been added at the end of Chapter 6. Chapter 7 has two reference sections.

Findings:

Information provided meets the requirements of the Regulations.

REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

Analysis:

The following table shows the biology-related appendix numbers from the older and newly formatted MRPs, titles of appendices, and numbers of pages in each appendix:

NEW FORMAT	OLD FORMAT	TITLE	NUM OF PGS
Appendix 3-A	Appendix 9-A	Vegetation analysis - reference area	35
Appendix 3-B	Appendix 9-B	Miscellaneous data	6
Not included	*Appendix 9-C*	*Vegetation monitoring*	
Appendix 3-C	Appendix 9-D	Shower house pad veg. and reference area	29
Appendix 3-D	Appendix 9-E	Tank seam access road vegetation	21
Appendix 3-E	Appendix 9-F	Vegetation studies for the fed. lease area	15
Appendix 3-F	Appendix 9-G	Vegetation sampling in the wild horse ridge area	40
Appendix 3-G	Appendix 9-H	Vegetation sampling in the wild horse ridge tank seam area	33
Appendix 3-H	*Proposed submittal*	Morland vegetation study	
Appendix 3-I	Appendix 10-A	Fish and wildlife resource information	36
Appendix 3-J	Appendix 10-B	Mitigation and impact avoidance procedure, general to all	17
Appendix 3-K	Appendix 10-C	Vertebrate species of southeastern Utah	73
Appendix 3-L	Not included	*Wildlife survey information*	21

The following table shows the older and newly formatted MRP table numbers and titles:

NEW FORMAT	OLD FORMAT	TITLE
Table 3-1	Table 9.3-1	Vegetation types
Table 3-2	Table 9.2-1	Vegetation reference areas
Table 3-3	Not included	*Recommended seed mix for interim reclamation*
Table 3-4	Table 9.5-1	Revegetation schedule
Table 3-5	Table 9.5-2	Recommended seed mix for riparian-creek bottom
Table 3-6	*Table 3-7*	*Recommended seed mix for pinyon juniper grass*
Table 3-7	Table 3-8	*Suggested proportions of tack to fiber*

Tables 3-3, 3-6, and 3–7 are new submittals.

The following table shows the older and newly formatted MRP figure numbers and titles:

NEW FORMAT	OLD FORMAT	TITLE
Figure 3-1	Figure 10-1	Endangered mammalian species in relation to permit area
Figure 3-2	Figure 9-19	Correct planting procedures
Figure 3-3	Figure 9-20	Seedling storage

The following table shows the older and newly formatted MRP plate numbers and titles:

NEW FORMAT	OLD FORMAT	TITLE
Plate 3-1	Plate 9-1	Vegetation map
Plate 3-2	Plate 10-1	Wildlife use area
Plate 3E-1	Plate 9F-1	Vegetation resources map for federal lease area

Also pertaining to Biology, Plate 5-3b shows the raptor nests in relation to planned subsidence.

Findings:

The Division considers information in the application adequate to meet the minimum requirements of the Biology-related information for Permit Application Format and Contents section of the General Contents regulations.

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

GENERAL

Regulatory Reference: 30 CFR 783.12; R645-301-411, -301-521, -301-721.

Analysis:

Analyses of the existing, premining environmental resources within the permit and adjacent area that may be affected or impacted by the proposed underground mining activities are discussed under other headings in this technical analysis.

Findings:

A determination of adequacy for this section will be determined to meet the regulatory requirements when all other information in this technical analysis is determined adequate. The Division has determined that each section of the application is complete and accurate.

PERMIT AREA

Regulatory Requirements: 30 CFR 783.12; R645-301-521.

Analysis:

The permit area is increased from 3,336.18 acres to 3,375.62 acres. As shown on Plate 2-1, the NE1/4 NE1/4 of sec 24 is now included in federal lease U-38727, as a result, all of sec 24 is in the permit area. Table 2-1 outlines surface ownership, and subsurface ownership: coal, minerals, oil & gas, as well as grazing rights within and adjacent to the existing permit area. Areas A through E in Table 2-1 are illustrated on Plate 2-2. (Area E, a category of land with U.S.F.S. surface ownership and C.O.P. Coal Development Co. subsurface ownership (fee coal) is adjacent to the existing eastern permit boundary, but not within the permit area. Consequently, Area E is not described as part of the permit area). [09162005]

Plate 2-1 illustrates the locations of federal leases U-61048 and U-61049 to the north and east of the permit area. These leases are held by C.O.P. Coal Development Co., but are currently not part of the permit area. The Permittee does not anticipate mining these areas within the current permit term. [09162005]

The disturbed area boundaries are shown on Plates 5-2 A - H., which are the surface facilities maps. The total disturbed area is listed as 40.46 acres in Chap. 2, Table 2-7, Reclamation Area Summary. Table 2-7 also breaks out 12.25 acres of pre-1977 acres and 28.21 post-SMCRA disturbance. [09162005]

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.12; R645-301-411.

Analysis:

The MRP provides information about cultural resource sites within the permit area (Appendix 4A). One of the survey reports provides the results of a survey for the entire Wild Horse Ridge area and discusses the significance of a historic resource site. This single site is considered eligible for listing in the National Register of Historic Places.

The MRP also provides a copy of a cultural resource report conducted by Kenneth Juell of the University of Utah Archeological Center. Part of this survey included the Wild Horse Ridge area, and four drill sites associated with access roads (mainly on Wild Horse Ridge). The results show that no cultural resource sites were found. According to this report, there were no other sites in the area.

It is not clear from the report done by Mr. Juell whether the report included all available information about cultural resources in the area. In response to this concern, the Permittee commits to conduct a literature search for all records of cultural resources in the area before doing any retreat mining. According to the Permittee, retreat mining should not occur for about four years.

Findings:

Information in the application is adequate to meet the requirements of this section of the regulations.

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.18; R645-301-724.

Analysis:

Section 724.400 discusses current climatic information. [06072005]

Findings:

The application meets the requirements for this section of the regulations.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.19; R645-301-320.

Analysis:

The MRP includes a vegetation survey of the reference area in Trail Canyon (Mel Coonrod 1982 and 1983; Appendix 3-A. The MRP also includes surveys conducted by Patrick Collins for the tank seam access road reference area (Appendix3-A) and shower house pad site and reference area (Appendix 3-C). The Permittee presents information in the Environmental Information section apparently related to these surveys. Although this information is somewhat disconnected, it provides scope, methods, equations, and results.

Appendix 3-F provides a report on the vegetation along the conveyor system and road for the Wild Horse project. This report includes quantitative measurements of vegetative cover and woody plant density. The report also contains measurements of vegetation productivity. Disturbances are narrow; therefore, the Permittee did not sample vegetation communities separately. The Permittee, in consultation with the Division, selected the reference area for the conveyor system and road was as transitional between the lower drainage area and the pinyon/juniper/grass areas on the upper slopes.

Plates 3-1 and 3E-1 illustrate the vegetation community types for the permit area.

Findings:

Information in the proposal is adequate to meet the requirements of this section of the regulations.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.21; R645-301-322.

Analysis:

GENERAL WILDLIFE

Plates 3-2 and 5-3b show raptor and big game habitat.

Ungulates: The entire Wild Horse Ridge area is either critical elk or deer winter range.

Aquatics: The right fork of Bear Creek is perennial, but it is not a fishery.

Raptors: There are several raptor nests in the area including two within about 2000 feet of the Wild Horse surface facilities site.

THREATENED, ENDANGERED, AND SENSITIVE ANIMAL/PLANT SPECIES

TES Plants

The TES plant species that could occur in Emery County include: Barneby reed-mustard, Jones cycladenia, last chance Townsendia, Maguire daisy, Despain footcactus, Wright fishhook cactus, and the Winkler cactus. Many of these species, however, occur at lower elevations than the mine.

The USFS (Region 4) lists canyon sweetvetch (*Hedysarum occidentale* Var. *canone*) and Link trail columbine (*Aquilegia flavescens* Var. *rubicunda*) as sensitive plant species. There are populations of these species within or adjacent to the Bear Canyon mine permit area. The Permittee has GPS locations for the known populations of sweetvetch within the permit area.

TES Animals

Bald eagles are common in the area during the winter and could occasionally fly through or roost within or adjacent to the permit area.

There are no recent, confirmed sightings of black-footed ferrets in Emery County.

The disturbed area for the Wild Horse Ridge project includes willows and other riparian vegetation. Populations of these vegetation types are not large enough to provide habitat for southwestern willow flycatchers.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

A reformatted, electronic version of the MRP was approved in 2005. Soils information previously located in Chapter 8 is now found in Chapter 2. An .xls file accompanying the submittal provides a quick check to the changes made in Plate and Appendix titles. The Division has created the cross-references for the narrative sections and table for use when reading the previous technical memos.

The .xls file included with the Public information Center January 2003 copy of the submittal provides a cross reference for new and old plate numbers and new plate titles. It is reprinted below with map titles added by the Division. New listings are in bold. This .xls file is not found on the other electronic copies of the submittal or in the hard copy.

Plate 2-1A	Formerly 8-1	Soils Map (Main Area)
Plate 2-1B	Formerly 8-1A	Soils Map (WHR Area)
Plate 2-2A	Formerly 8-2	Main Topsoil Stockpile Area
Plate 2-2B	Formerly 8.7	WHR Topsoil Stockpile Area
Plate 2-2C	**Created for WHR Tank Seam**	**WHR Tank Seam Topsoil**
Plate 2-2D	**Created for Mohrland**	**Mohrland Topsoil Stockpile Area**
Plate 2-2E	Formerly 8-6	Tank Seam Road Topsoil Stockpile
Deleted	Plate 8.4	Ballpark Topsoil Pile Area
Plate 2-3A	Formerly 8-5A	Reclamation Area (TS 1 & 2 Ballpark Area)
Plate 2-3B	Formerly 8-5B	Reclamation Area (TS 2, 3, 4, & 9, Shower House Area)
Plate 2-3C	Formerly 8-5C	Reclamation Area (TS 5-8, Load-out Area)
Plate 2-3D	Formerly 8-5D	Reclamation Area (TS 6, Mine Access Road Area)
Plate 2-3E	Formerly 8-5E	Reclamation Area (TS 10 & 11, Tank Seam Portal Area)
Plate 2-3F	Formerly 8-5F	Reclamation Area (TS 12 & 13, WHR Access Road Area)
Plate 2-3G	Formerly 8-5G	Reclamation Area (TS 12, 14, 15, 16, & 17, WHR Portal Area)
Plates 5-2 series	Formerly 2-4 series	Surface Facilities Blind Canyon

Plates in Chapter 2 (Soils) of the document are exactly the same as the existing MRP with one exception, Plates 2-2C (WHR Tank Seam Topsoil Stockpile Area) and 2-2D (Mohrland Topsoil Stockpile Area) are new listings and neither could be assessed. Apparently they have not been created yet.

Plate 2-2F Ballpark Topsoil Pile Area has been removed from the new format. This is appropriate since the Division approved the removal of the Ballpark from the disturbed area in 2001; and, Table 2-5, Topsoil Summary, does not include the Ball Park soils for use as substitute topsoil during final reclamation. Figures 2-1 and 2-2 in Chapter 2 are the same as Figures 8.9-1 (Photographs of the Ball Park Area) and 8.9-2 (Ball Park Topsoil Storage Pile) in the approved MRP. This information has been retained for historical purposes.

The .xls file included with the submittal provides new appendix numbers. For information pertinent to soils of the site, a cross-reference from the current MRP to the reformatted MRP is provided in the table below. There are no new listings of appendices for soils information.

Appendix 2-A	Formerly 8A	Soil Test Reports
Appendix 2-B	Formerly 8C	Prime Farm Lands
Appendix 2-C	Formerly 8D	Substitute Topsoil Material (Downcast)
Appendix 2-D	Formerly 8E	In-Place Plant Growth Material
Appendix 2-E	Formerly 8B	SCS Soil Survey
Appendix 2-F	Formerly 8F	WHR Soil Resource Inventory and Assessment
Appendix 2-G	Formerly 8G	WHR Tank Seam Soil Resource Inventory and Assessment
Appendix 5-I	Formerly 3-L	Cut & Fill calculations (for areas TS3-9)
Appendix 5-K	Formerly 3-P	WHR Tank Seam Pad and Access Road
Appendix 5O	Formerly 3-K	Sediment Pond Material
Appendix 7K	Formerly 7K	Alternate Sediment Control Areas (includes topsoil piles)
Appendix 5D	Formerly 3-E	Toxic Materials & Handling

The .xls file included with the submittal did not itemize changes to the tables. Tables in Chapter 2 (Soils) of the document are exactly the same as the existing MRP with one exception; the Analytical Parameters For Baseline Soil Data Table 8.8-1 has been replaced with two tables (Table 2-4a and 2-4b) that were taken from the January 2003 DRAFT Division Soils Guidelines for Management of Topsoil and Overburden. Below is a cross-reference of the current and previous table numbers and new table titles in Chapter 2 of the document:

Table 2-1	Formerly 8.3-1	Soil Map Units
Table 2-2	Formerly 8.3-2	Soil Unit Acreage Within the Disturbed Area
Table 2-3	Formerly 8.9-2	Available Substitute Topsoil Material
Table 2-4a	**Replaced** 8.8-1	Analytical Methods for Baseline Soils Data
Table 2-4b	**Replaced** 8.8-1	Additional Analyses Required for Substitute Topsoil,

		Overburden, Spoil and Coal Mine Waste
Table 2-5	Formerly 8.9-5	Topsoil Summary Table
Table 2-6	Formerly 8.9-4	Ball Park Seed List
Table 2-7	Formerly 8.9-1	Reclamation Area Summary
Table 2-8	Formerly 8.9-3	Substitute Topsoil Summary
Table 2-9	Formerly 8.11-1	Final Grading Test Sample Density
Table 5K-1	Formerly Table 3P-1	WHR Tank Seam Topsoil Recovery
Table 5O-1	Formerly Table 3K-1	Analytical Parameters for Overburden (in Appendix 5O)

The .xls file included with the submittal did not cross-reference changes to the narrative. Below is a cross-reference of the current and previous narrative sections pertaining to the soils resource information, topsoil and subsoil operations plan, soils redistribution plan, and stabilization plans.

Section R645-301-221	Formerly 8-6	Prime Farm Lands
Section R645-301-222	Formerly 8-1 & 8-2	Soil Survey
Section R645-301-222.100	Formerly 8-1	Soil Maps
Section R645-301-222.200	Formerly 8-3	Soil Identification
Section R645-301-222.300	Formerly 8-3	Soil description
Section R645-301-222.400	No previous reference	Soil Productivity
Section R645-301-223	Formerly 8-7 and 8.7-1	Soil Characterization
Section R645-301-224	Formerly 8.9-1	Substitute Topsoil
Section R645-301-230	Formerly 8.8.1.1	Operation Plan
Section R645-301-231	Formerly 8.8.1.1	General Requirements
Section R645-301-231.100	Formerly 8.8.1.1 and 8.8.1.2 & 8.9.7	Topsoil Removing and Storing
Section R645-301-231.300	Formerly 8.11	Soil Testing Plan
Section R645-301-231.400	Formerly 8.9, 8.9.2 through 8.9.6	Construction, Modification and Maintenance
Section R645-301-232	No previous reference	Topsoil and Subsoil Removal
Section R645-301-232.100	Formerly 3.5.4.2	Topsoil Removal Prior to Disturbance
Section R645-301-232.200	No previous reference	Insufficient Topsoil
Section R645-301-232.300	No previous reference	Topsoil Material Less Than 6 in Thick
Section R645-301-232.400	No previous reference	Area where topsoil will not be recovered
Section R645-301-232.500	No previous reference	Subsoil Segregation
Section R645-301-232.600	No previous reference	Timings
Section R645-301-233	Formerly 8.9	Topsoil Substitutes and Supplements
Section R645-301-234	Formerly 8.8.1.3	Topsoil Storage
Section R645-301-240	Formerly 8.9.1	Reclamation Plan
Section R645-301-241	No previous reference	General Requirements
Section R645-301-242	Formerly 8.10	Soil Redistribution
Section R645-301-243	Formerly 8.11	Soil Nutrients and Amendments
Section R645-301-244	Formerly 8.5	Soil Stabilization
Section R645-301-250	Formerly 8.4	Performance Standards

Cross-reference charts are key to the understanding of previous technical memos on the Bear Canyon Mining and Reclamation Plan.

Chapter 2, Soil Resources, Sections R645-301-221 through R645-301-250, discusses the soil resources for the Bear Canyon Mine.

Prime Farmland Investigation

A Prime Farmland site investigation was performed by the Natural Resources Conservation Service (NRCS). A negative determination was made for Prime Farmland or farmland of statewide importance within the proposed Wild Horse Ridge area (sec 24 and 25, T. 16 S., R. 7 E. and sec 19 and 30 T.16 S. R. 8 E.). The determination letter from the NRCS is dated July 9, 1999, and is included in Appendix 2-B.

Soil Survey Information

Chapter 2 supplies soil resource information for the Bear Canyon Mine and the proposed Wild Horse Ridge expansion based on the following soil surveys:

- 1980. Soil and vegetation survey for Bear Canyon, USDA San Rafael Soil Conservation District and the Soil Conservation Service, Appendix 2-B pp 1 to 13.
- 1990. Order I soil survey, USDA Soil Conservation Service, Appendix 2-B pp 13.
- 1992. Substitute topsoil survey for Bear Canyon, Appendix 2-E.
- 1996. Soil samples collected by Co-Op for Wild Horse Ridge. Appendix 2-F.
- 1998. Order II soil survey of Wild Horse Ridge, USDA Natural Resource Conservation Service.
- 1999. Order I soil survey of Wild Horse Ridge, conducted by Environmental Industrial Services, Appendix 2-F. The survey incorporates information from the 1998 Order II, NRCS soil survey and the 1996 soil sampling.

All mapping and soil survey work were performed according to the standards of the National Cooperative Soil Survey.

The 1990 and 1999 Order I soil survey for the Bear Canyon Mine and Wild Horse Ridge cover Bear Canyon and in the Wild Horse Ridge mine expansion area. Soil maps Plate 2-1 and Plate 2-1A illustrate the soil mapping units and disturbed areas.

Approximate range and average soil salvage depth for each soil map unit, based on evaluations of all field and laboratory data, plant rooting depth and soil rock content is provided for the Wild Horse Ridge in Appendix 2-F. For the Wild Horse Ridge survey, documentation of field data is presented in Map B-Soil Data Collection Map; Appendix C-Field Soil Profile

Descriptions and Transect Data; Appendix D-Soil Profile and Landscape Photographs. Appendix F contains information comparing soil-mapping units between the 1999 Order I soil survey to the NRCS Order II soil survey. Similar information is provided in Appendices 2-A, 2-B, and 2-E for the previously disturbed areas.

Soil Characterization

Section R645-301-222.200 and 222.300, Soil Information, identifies and describes each of the 10 soil groups as contained in the 1990 and 1999 Order I soil surveys. Soil descriptions for each of the ten-soil mapping units are summarized in Table 2-1 and in Section R645-301-222.300.

Information specific to Wild Horse Ridge is found in Appendix C within Appendix 2-F. Test results are included with the Order I soil Survey in Appendix F. Pit locations are shown on Plate 2-1B. Soil samples were sent to Inter-Mountain Laboratories, Inc. for analysis. Appendix B contains the analytical data on seven soil samples selected from representative soil layers in the Wild Horse Ridge survey. These samples were characterized according to the 1988 State of Utah Division of Oil, Gas and Mining (DOGM) guidelines for topsoil and overburden.

For all soils, except CW10-1, soil tests indicate that the soils generally rate fair to good for reclamation use. The one exception is soil sample CW10-1, which was taken from a light-colored soil layer at about 20 to 30 inches in depth on a road cut in Soil Map Unit F. The sample was taken to document properties of a calcic horizon in a Guben soil. Soil test results indicate an unacceptable level of selenium (0.26 mg/Kg) and a poor rating for electrical conductivity (10.2 mmhos/cm). The sample SAR value was3.7 and pH was8.3. The CW10-1 sample site is at the edge of the existing road accessing the future portal site. Every effort should be made to minimize disturbing and/or mixing the deeper subsoils (20 to 30 inches) of this section of road cut.

Soil productivity information is found in Appendix 2-E, SCS Soil Survey and Appendix 3-B Miscellaneous Vegetation Information.

Substitute Topsoil

The PAP does not propose any borrow as a source for substitute topsoil. However, in 1992, in-place overburden and disturbed soils within the facilities area, were evaluated for use as substitute topsoil material. Results are contained in Appendix 2-D.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

LAND-USE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.22; R645-301-411.

Analysis:

According to information in the MRP, the permit area is zoned by Emery County as Mining and Grazing and Critical Environmental. The land is used for mining, cattle grazing, timber, recreation, and wildlife. Parts of the area are included in a Private [Posted] Hunting Unit, and the access road to the Wild Horse Ridge surface facilities also provides access to a hunting cabin. This road will be maintained during the mining operations.

The MRP discusses previous mining activity in the area. Various entities have operated mines in the area since 1885.

The MRP says there are no public parks, cemeteries, or units of the Wild and Scenic Rivers system or the National System of Trails.

Findings:

Information in the application is adequate to meet the requirements of this section of the regulations.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

Analysis:

Alluvial Valley Floor Determination

The Wild Horse Ridge area does not contain alluvial valley floors as defined in R645-100. It is primarily an upland area with grazing and wildlife habitat land uses. Deposits are mostly colluvial with some water-laid deposits from sheet flow and other unconcentrated runoff events.

Applicability of Statutory Exclusions

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

Analysis:

A Prime Farmland site investigation was performed by the Natural Resources Conservation Service (NRCS). A negative determination was made for Prime Farmland or farmland of statewide importance within the proposed Wild Horse Ridge area (sec 24 and 25, T.16 S. R., 7 E. and sec 19 and 30, T.16 S., R. 8 E). The determination letter from the NRCS is dated July 9, 1999, and is included in Appendix 2-B.

Findings:

The Division concurs with the Natural Resources Conservation Service that there are no prime farmlands within the disturbed area.

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

Analysis:

The Permittee has met the requirements of the R645 Coal Rules. The MRP includes geologic information in sufficient detail to assist in determining the probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas, including the extent to which surface and ground-water monitoring is necessary, and determining whether reclamation as required by the Utah Coal Mining Rules can be accomplished and whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

The MRP includes a description of the areal and structural geology of the proposed permit and adjacent areas, including federal leases U-020668 and U-38727 and fee coal tract owned by C.O.P. Development. The description is based on maps and plans required as resource

information for the plan, detailed site-specific information, and geologic literature and practices. Additional geologic information has been submitted as part of Appendix 7J, Investigation of Groundwater and Surface Water Systems and Probable Hydrologic Consequences, a report by Mayo and Associates, LC. These descriptions show how areal and structural geology may affect the occurrence, availability, movement, quantity, and quality of potentially impacted surface and ground water.

The permit boundary as shown on revised Plates 6-1 through 6-12 includes federal leases U-020668 and U-38727 and fee coal owned by C.O.P. Development. Plate 6-1 is the Geology Map. Plates 6-2, 6-6, and 6-10 are overburden maps, Plates 6-3, 6-7, and 6-11 are isopach thickness maps, Plates 6-4, 6-8, 6-12 are structure contour maps, and Plates 6-5 and 6-9 are interseam isopach maps. Plates 6-2 through 6-12 are based on information from numerous borings and outcrop measurements: logs from many of these borings are in the MRP.

Plates 7-9 and 7-9A are stratigraphic cross-sections. Generalized logs for bore-holes T-1, T-2, T-3, T-5, SDH-1, SDH-2, and SDH-3 are shown on Plate 7-9 and those for WHR-1, WHR-2, WHR-3, WHR-5, WHR-8, F-76-1, F-77-5, F-76-6, 77-3A, and F-77-11-A are on Plate 7-9A. 7-J1 and 7-J2 are stratigraphic cross-sections based on logs from boreholes SDH-1, SDH-2, MW-116, and MW-117. Well completion diagrams for SDH-1, SDH-2, SDH-3, MW-116, and MW-117 are in Appendix 7-A, but the MRP does not contain original logs for any of these bore holes. The well completion diagram for MW-114 is in Appendix 7-A. Except for F-76-4 and F-77-B (Plate 7-9A), Plate 6-2 shows the locations for all bore-holes on Plates 7-9, 7-9A, 7J-1, and 7J-2.

Appendix 7-A also contains logs for in-mine drill-holes 1- and 2-UP and 1-, 6-, 7-, 9-, 10-, 11-, 12-, 13-, and 14-DOWN and SBC-2, -3, and -4, but locations for these are not on a map. Locations for an H series of in-mine bore holes are shown on Plates 6-5 and 6-7, but there are no logs for these holes in the MRP.

Drill-hole DH-3 was abandoned in 1993 and replaced by DH-4. Borehole logs and well completion diagrams for DH-1, DH-2, DH-3, and DH-4 are in Appendix 7N-G.

Logs for drill holes TS-6 through TS- 10 and TS-14 are in Appendix 6-A, but logs are not available for TS-12 and TS-13: there is apparently no TS-11. Locations for TS-6 through TS-10 are shown on Plates 6-9, 6-10, and 6-11.

There is no hydrology information available for the WHR series of boreholes (Section 7.1-4).

Revised Plates 3-4A and 3-4C show projected mining in the Blind Canyon and Tank seams, respectively, in the Wild Horse Ridge addition.

Subsidence is discussed in Appendix 3-C.

Tonnages in Table 3.4-1 have been updated to match the most recent R2P2. [09212005]

At this time the Division does not require the collection, analysis, and description of additional geologic information to protect the hydrologic balance, to minimize or prevent subsidence, or to meet the performance standards. The Permittee has made no request to the Division to waive in whole or in part the requirements of the borehole information or analysis required of this section. [06072005]

Findings:

Information on geologic resources is considered adequate to meet the requirements of this section.

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Analysis:

Sampling and Analysis

Holding time and sample analysis problems occurred at sites 16-7-13-1, 16-18-14 and 16-8-20-1. See Tables 2b and 3 in this technical analysis. For surface water site WHR-1, fluoride was not distilled for baseline data on June and August 1993; however, fluoride is no longer considered a required baseline parameter. Holding time expired on sulfate on 10/93. For all samples dissolved metals, which were filtered at lab, were received within one day. Lab sheets for all sites where data was collected in July 1991 were missing from the amendment since they could not be found. However, the data had been recorded and was submitted.

Baseline Information

Appendix 7-M, Spring and Seep inventory Federal Lease Area, provides a discussion of the seeps, springs, and streams in and adjacent to the Wild Horse Ridge addition. Attachment 7M-A, Surface and Groundwater Water Quality Information provides the lab sheets for baseline monitoring. Table 7.1-8, Water Monitoring Matrix: Operational Phase of Mining lists the proposed monitoring plan for the entire mine, including the Wild Horse Ridge addition. The plan clearly states that the operational monitoring will continue through reclamation to bond release.

Although included, adjacent area sampling associated with the McCadden Hollow area were not reviewed. This information was not considered to be directly related to the proposed Wild Horse permit area, but will be considered applicable to the Cumulative Impact Area (CIA) information. [06072005]

Water Rights are listed in Table 7-6 and locations shown on Plate 7-4. Printouts of water right information from the Division of Water Rights, which are in Appendix 7-C of the current MRP, have not been included in Appendix 7-C of the digitized and reformatted MRP. Instead of providing printouts, which can become outdated, the digital MRP refers to the Utah Division of Water Rights website at:

http://nrwrt1.nr.state.ut.us/wrinfo/query.asp

However, the MRP does not have this as an active link to the Water Rights web page. Additional information, which is not found on the Division of Water Rights web site, is in Appendix C.

Ground-water Information

Numerous sources for ground water related information are found throughout the plan. Data for groundwater well information were collected in 1996 and 1997.

The Permittee commits to collect water age dating and chemical make-up to verify the information found west of the Bear Canyon Fault can be applied to the Star Point Sandstone Formation east of the Fault. This commitment extends to all new wells within and adjacent to the Wild Horse Ridge area. [06072005]

Spring Data

Spring sampling was conducted for the Wild Horse Ridge lease addition and adjacent area. Information on springs within and adjacent to the Wild Horse Ridge area include springs WHR-2, WHR-3 and WHR-4. Spring WHR-4A was included in the Probable Hydrologic Consequence document and on a map, but there was no flow recorded for that location (Figure 1, Appendix 7-J, Mayo and Associate Report, August 1999). Spring identification labels have been clarified by providing both labels on Plate 7-4, Water Monitoring and a cross-reference table is included in Appendix B of the Mayo and Associates Report. In addition, Table 1 includes a legend of geologic formation abbreviations, and Figure 15 includes the geologic structure for the various stiff diagrams.

The Mayo Report discusses spring discharge rates by formation using a calculated R-value that is the sum of the minimum flows, over the sum of the maximum flows for all springs

issuing from the formation. This analysis provides a generalized description for the formation while individual R-values for springs within the formation may vary from the generalized description. However, the general high and low flow pattern for these formations is probably representative. [06072005]

Surface Water Information

The Mayo Report in Appendix 7-J identifies Trail Creek, Bear Creek, Fish Creek and Lower Cedar Creek as perennial. The upper Trail Creek, McCadden Hollow, Blind Canyon, and Upper Cedar Creek are intermittent or ephemeral.

According to the PHC, Fish Creek is a perennial stream. During 1996 and 1997 low flow was 15 gpm in Fish Creek in both the Left and Right Forks. These drainages may become intermittent during periods of prolonged drought.

Baseline Cumulative Impact Area Information

Adjacent area information is included within this permit application package for areas where future mining is likely to occur. [06072005]

Modeling

Modeling is not proposed to be used instead of data acquisition.

Alternative Water Source Information

No additional information on alternative water sources was presented in this amendment.

Probable Hydrologic Consequences Determination

The probable hydrologic consequences determination is provided in Appendix 7-J (Mayo and Associates, LC, "Investigation of Groundwater and Surface Water Systems in the C. W. Mining Federal Coal Lease and Fee Lands; Southern Gentry Mountain; Emery and Carbon Counties, Utah; Probable Hydrologic Consequences of Coal Mining in the Bear Canyon Mine Permit Area and Recommendations for Surface Water and Ground Water Monitoring" August 1999). Pertinent portions from this determination have been used to update the CHIA and complete technical directives process at Birch Spring and Big Bear Spring.

The Division has provided the most recent version of the Gentry Mountain Cumulative Hydrologic Impact Assessment (CHIA). The Division prepares this findings document and inclusion of the CHIA in the MRP is not necessary; however, the Permittee has included it in Appendix 7-L. [09212005]

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Affected Area Boundary Maps

The Permittee did not give the Division a map that identifies the affected area boundaries. The Division usually assumes that the permit and affected area boundaries are the same unless otherwise noted. Information in the application suggests that the permit area and affected area boundaries are the same. The Permittee did give the Division a permit boundary map, Plate 2-1. The Division found Plate 2-1 to be adequate.

Archeological Site Maps

Chapter 4 (Confidential Binder) provides maps showing survey areas and historic resources.

Coal Resource and Geologic Information Maps

Maps 6-1 through 6-12 have been updated to show the addition of the IBC to the permit area. [09212005]

Cultural Resource Maps

Chapter 4 (Confidential Binder) provides maps showing survey areas and historic resources.

Existing Structures and Facilities Maps

The only existing structure in the Wild Horse Ridge area mentioned by the Permittee is a hunting cabin and the access road. Both are shown on Plate 2-4G and Plate 3-7G. The hunting cabin is labeled on Plate 3-7G, and an outline of the building is shown.

Existing Surface Configuration Maps

Plate 3-7F and Plate 3-7G show the existing surface topography.

Mine Workings Maps

The Permittee gave the Division maps that show the mine workings in the Blind Canyon Seam, Plate 3-4A, and the Tank Seam, Plate 3-4C.

Monitoring and Sampling Location Maps

Plate 7-4, Water Monitoring, shows nearly all the monitoring locations proposed in Table 7.1-8, Water Monitoring Matrix; Operational Phase of Mining. Sites SBC-3 and MW-117 could not be shown due to the scale of the map; however, they are shown on Plate 7N-2, Water Sample Locations.

Permit Area Boundary Maps

Plate 2-1, Permit Area, shows the location of the permit boundaries. The Division addressed the permit boundary maps in the permit area section of this technical analysis.

Subsurface Water Resource Maps

Surface and Subsurface Manmade Features Maps

Plate 2-2 shows the surface ownership with the permit boundaries for the Wild Horse Ridge area. Plate 2-3 shows the subsurface ownership with the permit boundaries for the Wild Horse Ridge area.

Surface and Subsurface Ownership Maps

Plate 2-1, Permit Area, shows the location of the permit boundaries. The Division addressed the permit boundary maps in the permit area section of this technical analysis.

Surface Water Resource Maps

Water rights have been updated on Plate 7-4. A check of the Utah Division of Water Rights Internet page shows the appropriate water rights have been shown on the map.

Vegetation Reference Area Maps

Plate 3-1 illustrates the revegetation reference areas.

Contour Maps

There are several maps that show the topography for the entire permit boundary, such as Plate 7-4, Water Monitoring. Plate 3-7F and Plate 3-7G show premining contours. Plate 3-7G shows the premining contours extending 100 ft beyond the disturbed area boundaries. Plate 3-2G shows the postmining contours extending 100 ft beyond the disturbed area boundaries.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

OPERATION PLAN

MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

Analysis:

General

In Section 3.4 the application says, "Co-Op started its mining operating through an existing mine in the Blind Canyon Seam and later extended into the Hiawatha seam below. Access to the Hiawatha Seam was made in the summer of 1986 through two new portals in the outcrop, and through a rock slope tunnel from the Blind Canyon seam. In 1995, Co-Op extended operations into the Tank Seam, located above the Blind Canyon seam. In 1999 (2001), Co-Op plans to extend operations into the Blind Canyon and Tank Seams East of the Bear Canyon Fault. The four main seams in the Bear Canyon property are, the Tank seam, the Bear Canyon seam, Blind Canyon seam and Hiawatha seam. The Permittee does not plan to mine the upper Bear Canyon seam due to the proximity of the seam to the Blind Canyon Seam (0.30 ft interburden). Nor do they plan to mine the Hiawatha Seam in Wild Horse Ridge due to the thinning of the seam. The mine plan, sequence and projected development for the Bear Canyon, Hiawatha and Tank seams are shown on Plate 3-4A, 3-4B and 3-4C respectively."

Type and Method of Mining Operations

In Section 3.4.1.2 the Permittee says, "The mining at the Bear Canyon complex is done by continuous miners. The miners discharge into shuttle cars (diesel or electric), which carry the coal to a feeder breaker. The feeder breaker discharges the coal onto the belt conveyor where it is taken out of the mine." The mining methods are consistent with the proposed surface facilities expansion. If market conditions warrant, annual production will reach 1,100,000 tons per year.

Facilities and Structures

A list of new structures associated with the Wild Horse Ridge is given in Appendix 3A. The new structures are shown on Table 3A-1, in Appendix 3A. The new structures include a conveyor belt, substation, shop building, water tank and fuel tank. See the Support Facilities and Utility Installations section of this technical analysis for more details.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

EXISTING STRUCTURES

Regulatory Reference: 30 CFR 784.12; R645-301-526.

Analysis:

The application states that the only existing structure in the mineable portion of the permit area consists of a hunting lodge that exists in the Wild Horse Ridge area. The hunting cabin is shown on Plate 2-4G.

A road exists in the permit area that allows access for property owners and the Forest Service. That road is a permanent feature that will remain after mining.

Findings:

Information provided in the amendment is adequate to meet the regulatory requirements for this section.

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

Regulatory Reference: 30 CFR784.17; R645-301-411.

Analysis:

Historic resource 42EM1572 is within the permit area and is eligible for listing in the National Register of Historic Places. This site, however, is not within the disturbed area.

The Division received a letter from the State Historic Preservation Office concurring with the Division's determination that no historic resources would be affected for the Wild Horse Ridge project.

There are no public parks within the permit area.

Findings:

Information in the proposal is adequate to meet the requirements of this section of the regulations.

RELOCATION OR USE OF PUBLIC ROADS

Regulatory Reference: 30 CFR 784.18; R645-301-521, -301-526.

Analysis:

No public roads exist in the Wild Horse Ridge area. However, the Bear Canyon haul road and the No. 3 Mine Access road are also used by customers of Sportsman's Hunting to access a hunting cabin that exists in the right fork of Bear Canyon. Hunters will use the road primarily from May to November, typically 2-3 times per week.

A road can be defined as a public road if there is more than incidental use by the public. The term incidental use is not defined but is left to the discretion of the Division. The Division considers the use of a road 2-3 times per week for seven months by a hunting club's members incidental because (1) the general public does not access the area because of the step canyon slopes that limit recreational activities that can be accessed by the road and (2) hunting club members will use the cabin less than 100 times per year.

Findings:

Information provided in the amendment is adequate to meet the regulatory requirements for this section.

AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244, -301-420.

Analysis:

Permittee Appendix 4-D contains a copy of the Air Quality Approval Order DAQE-145-02 (AO). Section 423 of the plan indicates that the Permittee will water roads; drop points and storage piles as described in the AO.

Findings:

Information in the application is adequate to meet the requirements of this section of the regulations.

COAL RECOVERY

Regulatory Reference: 30 CFR 817.59; R645-301-522.

Analysis:

The Permittee gave the Division a general commitment to maximize coal recovery. Most of the information in the resource recovery and protection plan is contained in the mining and reclamation plan. The Permittee plans to mine the coal using room and pillar methods. The projected coal recovery rate is between 70% to 80% of the mineable coal. The Division reviewed the mine maps and other information in the permit application package about coal recovery and found that the Permittee is planning to maximize coal recovery.

Before the Permittee can begin mining, the mining plan must be approved by the Bureau of Land Management (BLM). One item that the BLM reviewed is the maximum economic coal recovery plan. Thus, the coal recovery plan is reviewed by state and federal agencies. Those agencies concur with the Division's finding.

Findings:

Information provided in the amendment is adequate to meet the regulatory requirements for this section.

SUBSIDENCE CONTROL PLAN

Regulatory Reference: 30 CFR 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

Analysis:

Renewable Resources Survey

The Permittee and the Division found that renewable resources exist within the Wild Horse Ridge mining unit. The Division is concerned that subsidence could: impact ground and surface water, that large subsidence cracks similar to those that occurred on the Bear Canyon Ridge could also occur in the Wild Horse Ridge area, and that escarpment failure could damage

or destroy eagle nests. Since renewable resources were found in the area, the Permittee must develop a subsidence control plan.

Subsidence Control Plan

- The Permittee proposes to use room-and-pillar mining to extract all the coal in the Bear Canyon complex. The Permittee expects to recover 75% of the coal in full extraction areas and 50% in first mining areas. The sequence and timing of mining is shown on the mine maps 3-4A, Blind Canyon Seam (lower), and 3-4C, Tank Seam (upper). No mining is scheduled for the Hiawatha Seam in the Wild Horse Ridge project. Subsidence should not occur in first mining only areas but should occur in areas where second mining (pillar recovery) occurs.

- The Permittee shows the underground workings for the Blind Canyon Seam (lower) on Plate 3-4A and the Tank Seam (upper) on Plate 3-4C. Plate 3-3 shows the projected subsidence for the Wild Horse Ridge project. Plate 3-4A and Plate 3-4C show the projected subsidence for each seam.

- Plate 3-3, Subsidence Map, shows the subsidence protection areas that include escarpment areas. Plate 3-4C shows where pillars will be left as part of the subsidence protection zone.

- The Permittee shows where second mining (pillar recovery) will occur on the mine maps. Areas marked panel or development will be first mined only. Areas that will be second mined are identified as pillar and development.

- The descriptions of the physical conditions that affect the likelihood or extent of subsidence are addressed in the geologic section of the technical analysis.

- The Permittee described the monitoring program in Appendix 3C in Section 5 of the amendment. The Permittee committed to installing 26 monitoring points in the Wild Horse Ridge area. The stations will be monitored yearly plus they will conduct an annual on the ground survey to look for subsidence effects. The subsidence-monitoring program is similar to the existing program that has proved to be adequate.

- The Permittee proposes to protect sensitive surface features from subsidence by first mining only. The protected areas are marked on the Plate 3-3. The pillars in the subsidence protection zones have safety factors of 1.5. The Permittee quoted references indicating subsidence should not occur if the pillar safety factor is at least 1.5. The reference is a NIOSH publication that the Permittee included in the application.

- The estimated amount of subsidence in the Blind Canyon Seam is 3.2 ft and subsidence in the Tank Seam is 4.1 ft. The maximum amount of subsidence in the Wild Horse Ridge area is 7.3 ft.

The Permittee described the measures that will be taken to mitigate or remedy any subsidence-related damage. The main item of concern is water replacement. The Permittee committed to purchase either water rights to replace damaged water rights, or to repair damage to existing rights. Should subsidence cracks occur, the Permittee will fill those cracks to the extent practical.

Performance Standards For Subsidence Control

The Permittee is required to meet the performance standards for subsidence control.

Notification

The Permittee is required to meet the performance standards for subsidence control.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

SLIDES AND OTHER DAMAGE

Regulatory Reference: 30 CFR Sec. 817.99; R645-301-515.

Analysis:

In case of a slide or other damage, the Permittee committed to notify the Division by the fastest possible method. The Permittee will repair the damage. If the Permittee is unable to determine the best way of repairing the damage, they will wait for the Division to recommend a repair plan.

Findings:

Information provided in the amendment is adequate to meet the requirements for this section of the regulations.

FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

Analysis:

Protection and Enhancement Plan

Ungulates

The Permittee must comply with exclusionary periods during construction and reclamation phases. The general exclusionary periods are December 1 through April 15 and May 15 through July 5. [09152005]

The deer and elk tended to winter and feed on the exposed ridge faces above the Wild Horse area. This surface facility site will disturb the big game habitat during the life of the mine. The Division, in consultation with DWR (Chris Colt; March 13, 2001), decided not to require mitigation for the big game habitat loss associated with the Wild Horse Ridge project. This exclusion is for this project only. DWR sent the Division a follow-up letter restating this agreement on September 6, 2005.

The MRP includes design information for the Wild Horse conveyor. Conveyors can inhibit big game movement. Deer and elk, however, are known to cross under conveyors with clearances greater or equal to three ft. The Permittee designed the conveyor to provide a three-foot minimum clearance.

Migratory Birds, Game Birds, and Raptors

The Permittee must comply with raptor exclusionary periods during construction and reclamation phases. The general exclusionary periods are December 1 through April 15 and May 15 through July 5. [09152005]

Plate 5-3b illustrates known raptor nests in relation to planned subsidence.

Endangered and Threatened Species [Sheila Mo52]

The Division, in consultation with USFWS, determined that the Wild Horse Ridge project will not adversely affect listed or proposed threatened or endangered species with the possible exception of four listed fish species of the upper Colorado River basin.

Plants

The Permittee plans to collect seed from the local populations of canyon sweetvetch (sensitive species) and seed topsoil piles. The intent of this project is to generate a seed bank for final reclamation that includes this species. [09122005]

Animals

Colorado River Fish

Adverse result of mining on water quantity to the Colorado River drainages affects four Colorado River endangered fish species (Colorado pikeminnow [squawfish], humpback chub, bonytail chub, and razorback sucker). The USFWS considers depletions or significant changes to contributions to the Colorado River drainage as a potential jeopardy to these endangered fish. Water users may have to mitigate if there are considerable changes to contributions or if water consumption is greater than 100 acre-ft per year. Currently, the mitigation fee is approximately 16.00 per acre-foot of depletion, but may change marginally from year to year. [09122005]

The Permittee provided the mass balance equation-parameters and total expected water loss from mining operations (Sec. 3-3.6). The amount of water loss expected from mining operations is 36.2 acre-ft.

Bald and Golden Eagles

The Division, in consultation with USFWS and DWR, decided that construction of the Wild Horse Ridge facilities would adversely affect nesting raptors and eagle nests in the area. These agencies agreed that the Permittee must implement a mitigation project for the loss of nesting habitat near the Wild Horse Ridge area. The mitigation effort originally included artificial nests, and big game and raptor habitat enhancement. (Refer to the Division's TA SR98 (1)-5b for communication and decision details for this mitigation effort.)

The Division, in consultation with USFWS and DWR, decided to substitute the habitat enhancement project with a raptor prey base study. The reason for this change was that DWR did not know which plant species to use for the raptor prey habitat enhancement because it is unknown whether the high elevation raptors prey on high or lower elevation animals. The information gained could help the industry more accurately design seed mixes to increase prey populations. The Permittee committed to secure a consultant to prepare a proposal pending the development of the goals and objectives of the study by DWR. Once approved, Co-Op would implement the plan. As of 9/15/05, the Permittee has not provided a plan, but has initiated a prey base project. The Permittee will provide a formal plan by 9/30/05. [09152005]

As of 9/1/05, USFWS and DWR decided to remove the recommendation of installing artificial nests based on the success of these nests in the Huntington Canyon area. [09152005]

The Permittee predicts that mining operations could cause subsidence under four known raptor nests in the Mohrland area. The Permittee will monitor the nests at least 2 years prior (2006/07) and 1 year following undermining. The Permittee may need to protect these nests depending on the timing of undermining. The Division, in consultation with DWR and USFWS, will determine whether the Permittee must protect the nests. Results from the 2006 fly-over survey will help direct that determination. Protection could include chain-link fencing over the nest or some other agreed protection method. [09152005]

If the Division determines that mining could impact any of the four nests, the Permittee will provide a mitigation plan prior to the approval of the Mohrland permit. The Division will provide a determination immediately after the 2006 fly-over survey. [09152005]

There are no protection plans for transient bald eagles.

Wetlands and Habitats of Unusually High Value for Fish and Wildlife

The Wild Horse Ridge project will not impact significant stands of wetland habitat. The Permittee covered the conveyor to help protect the drainage from coal fines.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Topsoil Removal and Storage

The Permittee has recorded the storage of subsoil and topsoil in Table 2-5 as16,134 yd^3 of topsoil and the 36,452 yd^3 of substitute topsoil, for a total of 52,586 yd^3.

Table 2-7 and Sec. 645-301-242indicates that there area 28.03 acres of post-SMCRA disturbance, including Wild Horse Ridge and associated access roads.

Chapter 2, Soil Resources, R645-301-230 through R645-301-232.500 describing the removal, storage and protection of soils, and selected overburden materials or substitutes, and App. 5J, 5K and 5M are all pertinent to the discussion of the plan for topsoil salvage and

protection during operations of the Wild Horse Ridge area. Five tables in the plan for the Wild Horse Ridge area are also key to the soil salvage activity:

Table 2-8, Substitute Topsoil Summary.
Table 2-2, Soil Unit Acreage Within the Disturbed Area.
Table 2-7, Reclamation Area Summary.
Table 2-9, Final Grading Test Sample Density.
Table 5K-1 and 5K-2, Summary of Cut and Fill Volumes.

The Permittee considers the Summary Table 2-7 as being the most accurate table in the plan.[1] All other Tables must reconcile with this one. Table 2-7 divides recontoured areas by operational areas and reclamation areas. Table 2-2 is specific to the Wild Horse Ridge and divides recontour acres by soil type within the 3.6 acre Wild Horse Ridge disturbance. Table 2-8 provides a summary of topsoil and subsoil stored at the site.

In Table 2-7, the Permittee itemizes 40.27 acres of disturbed area. In Tables 2-5 and 2-8, the Permittee summarizes the available topsoil and substitute topsoil for the 40.28 acre as approximately 52,000 yd^3.

Topsoil and Subsoil Removal

Wild Horse Ridge

Wild Horse Ridge topsoil salvage areas are identified on the Soil Suitability Map C, Appendix 2-F, Order 1 Soil Survey. Cut and fill volumes are located in Tables 5J-1, 5K-1 and 5K-2of Appendix 5K, Wild Horse Ridge Tank Seam Access Roads and Appendix 5J Wild Horse Ridge Blind Canyon Seam Pad and Conveyor Access Roads.

For Wild Horse Ridge, Table 5J-1 estimates that 8,700 yd^3 of topsoil was salvaged from the lower conveyor access road, the upper conveyor access road, and the Blind Canyon seam portal pad. The topsoil is shown on Plate 2-2B, WHR Topsoil Stockpile and Plate 7-1F, Hydrology Map. Section 645-301-231.400 indicates that the soil below the stockpile (Doney soil, map unit D) could provide an additional 2, 354 yd^3 of topsoil for Wild Horse Ridge during reclamation. This potential additional soil is included in the 11,054 yd^3 total listed as available for Wild Horse Ridge in Summary Table 2-8.

[1]Personal communication with Charles Reynolds during site visit 3/23/01.

Table 2-3 and 2-2 also project that approximately 11,049 yd^3 of soil are stockpiled for reclamation of the Wild Horse Ridge area (soils with symbols PC, WIN, WR, DON, DG, GP, DCP).

In Table 2-7, reclamation areas for the Wild Horse Ridge are labeled TS-12, TS-13, TS-14, and TS-15. Table 2-7itemizes the acreage to be reclaimed within each area and acreage to be graded within each of these areas. According to Table 2-7, areas TS-12 through TS-15 will add 7.3 acres of total area to the permit. All of the 7.3 acres will be reclaimed, however, only 3.6 acres will have soil salvaged and require recontouring during reclamation (Tables 2-2 and 2-7). The difference is due to:

1. The Wild Horse Ridge access road, 3.04 acres of which is pre-existing; and
2. The lower conveyor belt access road, 0.36 acres of which will not require grading during final reclamation; and
3. The upper conveyor belt access road, 0.3 acres of which will not require regrading during final reclamation.

The Permittee states supervisory personnel will be present during topsoil salvage to direct the salvage. Supervisors will document topsoil salvage operations, including salvage history, soil salvage areas, soil salvage volumes, and soil placement in the stockpiles.

Subsoil Segregation and Soil Salvage Practices

Soil salvage will be between 10 and 40 inches based on the Order I soil survey, App. 2-F. .A single elevated report of selenium was noted in Guben-Pathead soil taken from a cutslope near the switchback of the existing Wild Horse Ridge Road. The site of the sample is shown on Map B in Appendix F as CW 10 (20 - 30 inches depth). During road construction described in Sec. 645-301-527, the top ten inches of this soil will be salvaged and placed in the topsoil pile. The subsoil will be used as road base.

Section R645-301-231, 400, states that topsoil will be salvaged from all areas accessible by equipment, including soils with high rock content.

The main idea is that native soils with a higher intrinsic rock content than the 1988 Division guidelines deem acceptable, offer a greater potential for reclamation success as follows:

1. Allow a greater potential for moisture infiltration into the interstitial soils.
2. Provide for a more stable reclaimed surface.
3. Provide additional surface cover in sparsely vegetated areas, thus helping protect against raindrop impact and resulting soil surface erosion.
4. Create wildlife habitat niches.
5. Create microclimates for plant establishment and vegetation survival.

Topsoil Storage

Wild Horse Ridge topsoil pile is estimated as containing the 8,700 yd^3 of salvaged soils and 2,354 yd^3 of soil beneath the pile (in-place) for a total of 11,054 yd^3 of soil. The native, undisturbed soil was demarcated by permeable fabric strips placed over the soil surface prior to formation of the stockpile (see Section 645-301-231.400, Plate 2-1B, and Plate 5-2F).

The topsoil pile will be located adjacent to a catch basin, which will be created in the ephemeral drainage. The topsoil pile itself will be approximately ten ft in elevation and 20 ft distant from the ephemeral drainage. The topsoil stockpile will be surrounded with a containment berm and protected as discussed in Section R645-301-234.

Prior to construction on the shower house pad, topsoil was salvaged and stockpiled. The final topsoil stockpile consisted of 1,200 yd^3. This topsoil was relocated to the Wild Horse Ridge topsoil stockpile (Plate 2-2B).

Approximately 1,000 yd3 of topsoil was salvaged and stockpiled from the Bear Canyon Mine Tank Seam access road during construction. During construction of the Wild Horse Ridge area, this topsoil was also relocated from the upper storage pad to the Wild Horse Ridge topsoil stockpile (Plate 2-2B).

The Wild Horse Ridge topsoil stockpile is detailed on Plate 2-2B which shows the projected stockpile, size, placement, final configuration and cross sections. According to Plate 2-2B, typical slopes range from approximately 6:1 for east facing, 2:1 for west facing, 3:1 for north facing, and 2:1 for south facing.

Appendix 5J, Fig.5J-1 and associated cross sections show the lower conveyor access road and topsoil stockpile. Cross sections showing the topsoil stockpile final configuration and resulting slopes correlate with Plate 2-2B.

Findings:

Information provided in the application is considered adequate to meet the requirements of this section of the regulations.

VEGETATION

Regulatory Reference: R645-301-330, -301-331, -301-332.

Analysis:

Appendix 3G includes a plan for interim revegetation. The plan includes to drill or broadcast seed (Table 3-3), apply 1500-2000 pounds per acre of wood fiber hydromulch with a tackifier. The seed mix has one species that is not native. The Permittee will monitor interim revegetation sites and reseed when necessary.

Findings:

Information provided in the proposal is adequate to meet the requirements of this section of the regulations.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

Analysis:

Road Classification System

The roads associated with the Wild Horse Ridge project are all classified as primary roads. Those roads are the existing Wild Horse Ridge road, the extension of the Wild Horse Ridge road to the portal area and the two new conveyor access roads. Note the extension of the Wild Horse Ridge road is referred to in the permit application package as the No. 3 Mine Portal Access Road and the extension of the road to the portal area is called the No. 3 Mine Portals and Pad Area.

The No. 3 Mine Portal Access Road is an existing road 4,850 ft long. The road has an average grade of 10.5% with the steepest grade being 18%. The road existed prior to mining and will be retained for the postmining land use.

The conveyor access roads will provide access to the areas where the conveyor system will be built, operated, and reclaimed. The lower road is approximately 600 ft long and has an average grade of 10%. The upper road is approximately 590 ft long and has an average grade of 19.5%. Those two roads will be reclaimed after mining is completed.

The Division has concerns about the steep grades. However, the Division does not have standards that require gentler grades. For road designs the Division relies heavily on the judgment of the engineer that designed as certified the roads.

The Division does not consider the No. 3 Mine Portals and the Pad Area a road. The Division considers that area as a pad area. Therefore, detailed road designs are not required.

Plans and Drawings

Plate 3-5D and cross sections in Appendix 3-O show the road widths and drainages. The roads slope at 2% to ditches that parallel the roads to direct runoff. The cross sections are on 100-foot centers and show cut and fill requirements for both construction and reclamation. The Division will use that information to do bond calculations.

In Appendix 3-O, the Permittee shows a detailed plan for the construction and reclamation of the roads. In Section 3.6.12 of the amendment, the Permittee gives a detailed reclamation plan for the roads in the Wild Horse Ridge site. Since no material will be down cast, all fill material will either be hauled back to the site or excavated from the fill areas. Because the native material contains large boulders (3 ft to 5 ft in diameter), the lifts will be a maximum or 36 in. The fill will be compacted with earthmoving equipment. The Permittee and its consultant do not believe that conventional compaction equipment will work at the site. Therefore, compaction will be done with earth moving equipment.

The Division recommends that the Permittee use a maximum lift thickness of 8 in. The Division is concerned that inadequately compacted slopes could fail. Since the Division does not have any standards that apply directly to lift thickness and the designs have been certified by a licensed professional engineer the Division will not require the Permittee to change the maximum lift thickness.

The designs for the main haul road in the No. 3 Mine Portals and Pad Area are in Appendix 3-O. The Permittee will reclaim most of the cut slopes. Since some cut slopes do exist in the area total elimination of cut slopes may not be possible.

Performance Standards

The Permittee committed to repair road damage caused by a catastrophic event as soon as practical. In addition to the above, primary roads will meet the following requirements:

- Primary No.3 Mine Access Road is the main road to the portal area. Certified maps showing the road are Plate 3-5D Road-Details and Plate 2-4G, 2-4F Surface Facilities.

- Primary Conveyor Access Road No.1 is the lower conveyor access road and is shown on Plate 3-5D Road-Details and Plate 2-4F Surface Facilities.

- Primary Conveyor Access Road No.2 is the upper conveyor access road and is shown on Plate 3-5D Road-Details and Plate 2-4G Surface Facilities.

- The cross sections on Plate 3-5D show the road width and drainage. The roads slope at 2% slope and have parallel ditches that direct runoff. The cross sections Attachment 2 of Appendix 3-O show cuts and fills. The Division will use those cross-sections to determine reclaimability, which will be discussed in the reclamation section of this technical analysis.

- Appendix 3-O-6 contains the slope stability study conducted by Dames & Moore. The consultant outlined the soil and rock sampling, procedures and testing. The stability analysis was described. All slopes had a minimum safety factor of 1.6, and the minimum required safety factor is 1.3.

- Most of Primary No. 3 Mine Access Road will be constructed on an existing dirt road. By upgrading the existing dirt road, the Permittee will be minimizing erosion. Since the roads must be constructed in a narrow canyon, the Permittee has limited options about where to place the road. The Division reviewed the road designs and concluded that the erosion will be minimized and that the roads are located on the most stable available surface.

- The Permittee does not propose to construct fords in any perennial or intermittent streams.

Primary Road Certification

All primary road designs have been properly certified.

Other Transportation Facilities

The conveyor system goes from the coal bin near the portals to the tipple facilities then to the coal storage pad. The conveyor system will be enclosed to minimize fugitive coal dust emissions. The R645 rules have few design specifications for conveyor systems. The Division reviewed the conveyor plans and found that they meet the minimum engineering requirements. See Appendix 7K Page13 for information on dust control.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Disposal Of Noncoal Mine Wastes

Noncoal waste will be placed in metal dumpsters that are on the property. A local trash collector will remove and replace the bins when they are near capacity. This is standard procedure for most coal mines.

The permittee experienced an unanticipated roof fall in the 1st North section of the Bear Canyon #1 Mine on January 14, 2003 that buried a battery-powered coal hauler, an electrical distribution box, and a shop trailer. Appendix 7-P contains information on the abandoned equipment, including Material Safety Data Sheets (MSDS) for the lubricants and hydraulic fluid, battery electrolyte, and lead contained in the DC power cells. Plate 7-10B, a PE certified map of the #1 Mine, shows where the equipment is buried. Plate 7-10B also shows floor seeps and roof drippers, vertical boreholes that connect the Hiawatha seam with the overlying Blind Canyon seam, areas of the 1st North section where water collects near the buried machinery, and mine water discharge lines.

The Permittee reported this accident to the USEPA and also notified other state, federal, and local agencies. On May 27 and 28, 2004, the Division's PFO confirmed the receipt of that letter by each agency. The Permittee faxed a copy of the notification letter to the Division on May 28, 2004. [06072005]

Coal Mine Waste

Sediment pond clean out is described in Appendix 5O. A maximum of 150 cu yd of coal mine waste will be temporarily stored on the main storage pad shown on Plate 5-2C. The material will not be stored at that site for more than 15 days. The Permittee will keep logs recording when the material is placed and removed from the storage site. Permanent storage of the coal waste material will be either underground or at the Hiawatha mine.

Waste rock from the Wild Horse Ridge will be hauled to Hiawatha slurry pond 5A. Prior to being hauled it will be tested according to Table 5O-1 of Appendix 5O. The Hiawatha plan has been amended to allow for this activity.

In the event the coal mine waste should catch fire, the Permittee will extinguish the material by spreading it out on the surface and allowing the material to burn out and/or distinguishing the fire with water.

Refuse Piles

The Permittee does not propose to construct a refuse pile. All refuse (coal mine waste) will be disposed of underground or at the Hiawatha Mine.

The Division has approved the disposal of coal mine waste at Hiawatha's Pond No. 5A.

Impounding Structures

The Permittee does not propose constructing any impoundments out of coal mine waste.

Burning And Burned Waste Utilization

In Section 528.323, the Permittee states a plan for extinguishing potential fires in the waste rock pile.

Return of Coal Processing Waste to Abandoned Underground Workings

The Permittee has approval for disposing of coal mine waste underground. The plan is mainly for small amounts of roof material.

Excess Spoil

The Permittee does not plan on generating any excess spoil.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

General

The water discharged from the mine through SBC-9A is the culinary water supply for the Bear Canyon Mine. The MRP includes a description of the installation of the 6-inch diameter polypropylene pipeline that continuously drains ground water from the area of the abandoned mine equipment. Plate 7-10B shows the location and routing of the pipeline. Figure 7P-1 is a typical cross-section of the cribbed pipeline installation. [06072005]

Basically all information from the text of Chapter 7 of the current MRP, including the appendices, has been incorporated into the electronic MRP. [09212005]

Previous amendments to the Bear Canyon Mine hard-copy MRP have required additional pages be inserted into Appendix 7-H. The inserted pages were labeled with numbers followed by letters (e.g. 7H-14A) rather than page numbers alone so that pages that followed the inserted material did not need to be renumbered. In the electronic MRP, all pages have been given sequential numbers. [09212005]

Groundwater Monitoring

The plan references a recommended water-monitoring plan, included in Appendix 7-J, Section 10.0. The monitoring plan is contained in Section 7.1.7. Table 7-13 is the Ground Water Quality Parameter List. [09212005]

The PHC, Appendix 7-J, includes a discussion in the subsidence section on multiple coal seam removal. The PHC states, the potential for mining to impact springs appears to be minimal. Given the surface fracturing, the possibility exists that surface recharge to the springs could be affected.

On March 22, 2000, an order from the Division required the Permittee to modify the permit application by including "portions of the February 21, 2000 letter 'Responses to concerns of Castle Valley Special Services District' from Mayo and Associates, LC to Charles Reynolds, Co-Op." That requirement was complied with by inclusion of the letter in Appendix 7-J. A second requirement of that Division Order was to include " a minimum of one in-mine drill hole in the northern portion of the Wild Horse Ridge Addition." That requirement was complied with by addition of monitoring well DH-5 shown on Plate 3-4C. The well is located at the northern boundary of the mine addition. The drill hole "will be tested using the same methodology which was used in the previous in-mine wells, described in Appendix 7-N." [01/09/2006]

The Permittee added dissolved lead to the potential contaminants listed in Appendix 7P and to Table 7.1-7 (Ground Water Quality Parameter List). Results of water-quality analyses required analyses by DDW are available from DDW. [06072005]

Surface Water Monitoring

The Upper Right Fork Bear Creek, BC-4, above the proposed disturbed area, has been added to the monitoring plan. Surface water monitoring at the Left Fork of Fish Creek, FC-1 and McCadden Hollow, MH-1, were added to the monitoring plan.

Acid- and Toxic-Forming Materials and Underground Development Waste

Section 542.200 refers the reader to Appendix 5D and Appendix 6C for acid toxic information. Appendix 5D Toxic Materials & Handling provides limited information on the characteristics of soil, coal and sediment pond sludge through 1989. Appendix 6C Coal & Rock Characteristics has samples of roof and floor through 1995 and includes samples analyzed in January 2003 of the roof, floor, coal, and sediment pond clean out. The mine roof RM1 samples show that the coal has a pH of 3.7, no neutralization capacity and a boron content of 10 ppm.

Additional sampling was conducted in 2004 that has yet to be added to Appendix 6C.

Transfer of Wells

No discussion on transfer of wells in the new permit area is provided. It is assumed all wells will be properly abandoned when no longer needed for mining.

Discharges Into An Underground Mine

It was estimated that 0.05 cfs water will be required for mining associated with the Wild Horse Ridge. A water line from #1 mine to the #3 and #4 mines is located along the conveyor. This water is to be used for a bathhouse, drinking water, and for spray on the working face, at coal belt heads, at transfer points, and at the tipple for dust suppression. Page 7-56 indicates, "No water will be discharged into the mine during or following reclamation."

Gravity Discharges From Underground Mines

No gravity discharges are expected for the Wild Horse Ridge mines, Bear Canyon No. 3 or No. 4.

Water-Quality Standards And Effluent Limitations

Water quality standards and effluent limitations must be conducted according to State Standards and the approved UPDES permit. A copy of the current permit, which includes a discharge point for Pond D is included in Appendix 7-B.

Monitoring of the mine discharge will continue for the life of the mine (Appendix 7-P). Potential contaminants from the abandoned equipment are identified in Appendix 7P, and copies of the MSDSs are in Appendix 7-P. Water not consumed by culinary uses and mine operations is discharged to the stream in Bear Canyon under the UPDES permit. [06072005]

Diversions: General

Diversion designs are provided for the 10-year, 6-hour event. The Permittee committed to maintain the minimum required cross sectional area. Freeboard was presented to be 0.30 to 0.48 ft. Standard engineering practices generally use a minimum of 0.3 ft, so this is acceptable. Along the roads, additional culverted cross drains may be advantageous in meeting the ditch requirements without requiring changes in the road surface slope.

The culvert containing Bear Creek for the road to get to the new addition has been designed to meet the 100-year 6-hour storm. This is described in Appendix 7-G. This is the appropriate design storm.

Road Drainage

The Permittee should consider placing a culvert at the approximate location of label D-21U on Plate 7-1 F. The primary road retains this drainage along the in slope for a significant distance in this region. Also, the slope breaks from a steep section to a low gradient area at this location that may result in maintenance problems due to sediment settling out in the ditch.

Stream Buffer Zones

Construction in the buffer zone will be necessary to build the roads and portal in the east fork of Bear Creek. Map 2-4 shows buffer zone markers all along the access road, along the conveyor belt roads, and along the lower edges of the topsoil storage piles. The diversion channels and culverts have been properly designed according to the appropriate sections of the regulations. Several safeguards have been included to prevent adverse impacts to the stream. These include sediment control with silt fences, berms around the topsoil storage piles, enclosure of the conveyor system, sediment traps to catch coal fines, alternate sediment control areas, a berm around the fuel tank, and sediment pond D at the portal. These measures are expected to prevent violation of water quality standards and prevent mining operations from adversely affecting the stream.

An approved stream alteration permit obtained from the State Division of Water Rights for the proposed several stream channel alterations is provided in Appendix 7-O.

Sediment Control Measures

Construction - Sediment Control Methods

A berm will be created on the downslope side of a cut. Road cuts will be made into the slope rather than parallel to the slope. Blasts will be designed to drop material into the cut area behind the berm (Appendix 3-O). The blasting methods used here will be the same as have proven successful in constructing the other roads in the permit area. Along the Blind Canyon Seam portal pad, temporary and permanent silt fences will be placed to treat all runoff from the disturbed area not contained by a berm. Fences will remain in place until all runoff is directed to the sedimentation pond and erosion control matting will be used on the outslope of the Blind Canyon Seam portal pad fill (Appendix 3-O). The Permittee has committed to install the erosion control matting in strict conformance with the manufacturers instructions.

Discussions related to culvert placement and pad and operational construction in the drainages are detailed. The application states that, "Following initial pad contouring the sediment pond will be constructed followed by road crowning and ditch and culvert placement." (Appendix 3-O). More construction detail is contained in Appendix 3-O. Culverts will first be placed in the ephemeral drainages at each crossing to separate disturbed and undisturbed drainages in the event of storms during construction. Also, that way the catch basins will not receive runoff from undisturbed drainages. Special care is to be taken at a "small riparian area adjacent to this road". This is above the spring designated SBC-14, (WHR-6) which is a unique area. It contains a small population of the Forest Service Region 4 sensitive species Link Trail columbine. A site visit by the Division evaluation team followed by discussions with the Permittee resulted in a commitment (Appendix 3-O) that the Division hydrologist will be notified in time to make a field visit when the blasting is to occur above this spring, SBC-14, (WHR-6) and when construction for the culvert above this spring is to take place.

Operational - Sediment Control Methods

Sediment control measures include using a sedimentation pond and BTCA erosion control areas V and W. The BTCA area V includes the out slope along the conveyor access road and the Blind Canyon portal pad out slope area. These areas are mapped on Plate 7-1G. Erosion control matting will be used on the out slope and a berm will be placed on the outside edge to prevent water from flowing onto the slopes.

BTCA area W includes the conveyor belt areas. A silt fence will be placed down slope during construction, and it will be evaluated for removal following construction. During operations, coal fines will be captured in a metal pan below the belt and will be cleaned off the pan. A dust cover will be placed over the belt to prevent fine coal wind transport. Details of the conveyor belt are presented in Figure 7K-1, Typical Conveyor Pan Structure. These appear to be reasonable measures to minimize the amount of coal fines leaving the conveyor belt.

In the lowest belt area, the pan will be cleaned with water draining to disturbed area ditch D-3D, which reports to the lower area sediment pond. The two upper conveyor belt areas will report to two catch basins, No. 1 and 2. The Wild Horse Ridge Coal Storage Bin area also reports to catch basin No. 2. These catch basins were included at the request of the Division to provide additional control of possible coal fines coming from the conveyor system. These areas are mapped on Plates 7-1C, 7-1F and 7-1G. The designs, calculations and certification for these basins are provided in Appendix 7-K. Capacity was based on a 10-year, 6-hour storm peak. Catch basins will be inspected and cleaned as necessary to maintain capacity. Both of the catch basins have an outlet spillway, so flow from the basin is controlled under situations that exceed the storage volume. These are detailed in Figures 7K -3 and -4. The spillways are provided with riprap linings.

Siltation Structures: General

See: Sedimentation Ponds.

Siltation Structures: Sedimentation Ponds

The proposed Wild Horse Ridge area includes designs for sedimentation pond D. All runoff from the portal pad area will report to this pond. The pond was designed to the appropriate 10-year, 24-hour storm event using runoff curves of 90, which is appropriate for the pad area and the rocky drainage area leading to the pond. The pond is designed to store the full volume of the design storm. Reference Table 7.2-15, and Plate 7-11.

The sedimentation pond must maintain adequate sediment storage capacity. The proposed cleanout level of 60% meets this requirement. Reference Section 7.2.8.4 and Plate 7-11, Sediment Pond D. At pond D, the decant structure is located above the 60% cleanout level. The cleanout elevation is 0.55 ft below the decant elevation. A Decant Structure Detail is included with the oil skimmer end in the pond and a control valve for sampling and draining at the downstream end.

A single open channel spillway is proposed for discharge from the pond. The spillway is appropriately designed using a 25-year, 6-hour design event and the spillway is lined with riprap. The D-50 rock size is six inches and appears appropriately designed. A fuel tank is located about 100 ft away from this pond. Plate 2-4 shows a containment berm should the tank leak. This berm and its design are to be part of the SPCC plan, which will be completed within six months after construction is completed. Full containment berms around fuel tanks are standard on the rest of the site, and will be included for this one.

Based on the letter accompanying the latest submittal, it's expected that the SPCC plan will be updated and available at the site "within six months of implementation of the Wild Horse Ridge construction." A determination will then be made whether the proposed plan minimizes

potential for hydrocarbons to be released off the permit area. This needs to be included in the plan when it's finished.

Dames and Moore conducted a stability analysis for the portal staging area sedimentation pond. This analysis for steady state seepage assumes a 7-foot-deep pond is full and two seepage conditions exist: 1) A straight line condition through the fill, and 2) Seepage controlled by the native sandstone and colluvium interface. Results suggest during a pseudo-static loading condition, shallow surface slide and sloughing from the structural fill and native slopes could be expected with strong ground movement. Proposed embankments have a minimum safety factor of 1.46.

Siltation Structures: Other Treatment Facilities

No Other Treatment Facilities are proposed.

Siltation Structures: Exemptions

No exemption from siltation structures are proposed.

Discharge Structures

Discharge structures are designed to minimize erosion.

Impoundments

The only new impoundment associated with the Wild Horse Ridge addition is Pond D. Since the pond will be removed during reclamation, the pond is considered temporary. Therefore the requirements that apply specifically to permanent ponds do not apply.

The size and height of the impoundment may require the pond to meet additional design requirements. Such ponds are unofficially called MSHA ponds.

The following requirements apply to both temporary and permanent impoundments:

- MSHA requires that all impoundments meet additional standards if the pond 1) impounds water to an elevation of 5 ft or more above the upstream toe of the structure and can have a storage volume of 20acre-ft or more; or (2) impound water to an elevation of 20 ft or more above the upstream toe of the structure; or (3) as determined by the district manager. Pond D has a maximum storage capacity of 4,113 ft^3 (0.094 acre-ft), storage capacity above the decant. The height of the pond from the bottom of the pond to the top of the embankment is 7.5 ft. The pond does not qualify as an MSHA pond.

- Plate 7-11 shows the plans and cross sections for Pond D. The plans have been certified by Charles Reynolds, a registered professional engineer.

- Dames and Moore conducted a stability analysis for the Portal Staging Area sedimentation pond. This analysis for steady state seepage assumes a 7-foot-deep pond is full and two seepage conditions exist: (1) A straight line condition through the fill, and (2) Seepage controlled by the native sandstone and colluvium interface. Results suggest during a pseudo-static loading condition, shallow surface slide and sloughing from the structural fill and native slopes could be expected with strong ground movement. Proposed embankments have a minimum safety factor of 1.46. The pond is required to have a minimum static safety factor of 1.3.

- The Division will monitor the construction of the Pond D to ensure that foundations are properly constructed and record made.

- The Division and the Permittee used STABLE, a slope stability program, to determine that the pond would be stable under rapid drawdown conditions.

- No highwalls are associated with Pond D.

- The Division will review the inspection reports for Pond D during some monthly inspection, all complete inspection, and the review of annual reports.

Ponds, Impoundments, Banks, Dams, and Embankments

Casing and sealing of wells

No changes to the plan for casing and sealing of wells is proposed. The existing plan is assumed to be adequate to handle this regulatory requirement.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

SUPPORT FACILITIES AND UTILITY INSTALLATIONS

Regulatory Reference: 30 CFR Sec. 784.30, 817.180, 817.181; R645-301-526.

Analysis:

The Permittee lists the existing and proposed structures at the Bear Canyon Mine in Appendix 3A, Table 3A-1. The new facilities include (1) Wild Horse Ridge conveyor belts, (2) Wild Horse Ridge substation, (3) Wild Horse Ridge shop, and (4) Wild Horse Ridge water and fuel tanks. The new facilities are shown on Plate 2-4.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

SIGNS AND MARKERS

Regulatory Reference: 30 CFR Sec. 817.11; R645-301-521.

Analysis:

R645-301-521.200 requires the Permittee to post (1) mine and permit identification signs, (2) perimeter markers signs and (3) topsoil marker signs. The Permittee committed to place those signs as required. The Division's inspectors routinely check the site for signs and markers. Should a problem occur the Division will deal with it during a routine inspection.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

USE OF EXPLOSIVES

Regulatory Reference: 30 CFR Sec. 817.61, 817.62, 817.64, 817.66, 817.67, 817.68; R645-301-524.

Analysis:

General Requirements

A blast design is submitted as Appendix 3-M that describes a blasting plan for the construction of the conveyor access roads associated with the Wild Horse Ridge addition that will comprise the Bear Canyon #3 and #4 Mines. The anticipated blasting plan has been

prepared and signed by Mr. Kevin Petersen who is known to have a current surface blasting certificate issued through the State of Utah.

The plan clearly indicates that there are no active or abandoned underground coal mines, dwellings or public buildings within the radial distances described within R645-301-524.211 and -524.212. The response clearly states that there are no active or abandoned underground coal mines within 500 ft of the proposed Wild Horse Ridge blasting area. No other buildings exist within 1,000 ft of the proposed Wild Horse Ridge blasting areas. Although a hunting cabin exists approximately 750 ft from the nearest proposed blasting area, the building cannot be classified as a dwelling or as a public building, (school, church, etc.). Although the Permittee's response does contain an anticipated blast design, it was not necessary to submit it. Regulations R645-301-524.210 through -524.212 have been adequately addressed. The anticipated blast design that has been submitted appears to be able to successfully meet the fragmentation requirements being sought without incurring significant damage to the surrounding environment.

The Permittee's response provides the following information to address deficiencies aired in the initial response:

1) A drawing that shows the burden, spacing and depth of boreholes for the bench type blasting to be used for bedrock removal (establishment of road grade) has been provided. A verbal description of the method to be used for boulder breakage has also been provided.

2) Page 3M-3 of the revised blasting plan clearly states that satchel type directional charges will not be used in order to minimize air blast and fly-rock. A description of the explosive to be used (Irecoal D 378) is not a satchel type directional charge.

3) Borehole will have the proper diameter for safe blasting.

4) The revised blast design has more than doubled the weight of explosive which will be used per borehole. They will be using 1.3 pounds per hole, with a maximum of ten holes per round; hence a maximum of 13 pounds of explosive will be used per round. This improves the powder factor significantly in the anticipated blast design. The ability to adjust fragmentation within the round is within the jurisdiction of the certified blaster performing the work, and it is not necessary to obtain DOGM approval for minor changes in powder factor.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Affected Area Maps

Several maps show the permit boundaries and proposed mining areas. Those maps are considered adequate to serve as the affected area map.

Mining Facilities Maps

Plate 2-4G and other maps show the mining facilities.

Mine Workings Maps

The mine maps for the two seams in the Wild Horse Ridge project are Plate 3-4A Bear Canyon seam (lower) and Plate 3-4C Tank seam (upper).

The Permittee applied for an amendment to permit an auxiliary portal in the #4 Mine (Tank seam) to the surface in the left fork of the right fork of Bear Canyon. The underground entries would connect the 1st West Bleeder entries to the surface, and the breakout would serve as an alternate escape route for the miners if the primary and secondary escapeways (located at the #4 Mine portal pad area) would become blocked. This area has seen avalanches of snow in the past. The primary use of this auxiliary portal will be for the monitoring of seeps and springs in that area. A footpath will connect this breakout to the #3 Mine portal pad, or the coal silo located on the #3 Mine conveyor corridor. PLATE 3-4C has been updated to reflect this auxiliary portal. [01/09/2006]

Plate 7-10B shows the location of the 6-inch polyethylene pipe that drains the area of the roof fall and carries the water through the sealed entry and to the flow meter outside the mine. The map is PE certified. Figure 7P-1 shows a typical cross section of the pipe installation. [06072005] The #1 Mine was sealed in January of 2004; the six inch polyethylene pipe which was installed continues to provide culinary water for the facilities area. [01/09/2006]

Monitoring and Sampling Location Maps

Monitoring locations are shown on Plate 7-10B. [06072005]

Certification Requirements

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

Terracing as a reclamation method is described on page 3-75. The areas proposed to be terraced are shown on the reclamation map. Although terracing may be appropriate in some locations it is found to be less effective than simple slope changes in many locations in Utah. Slope form or slope brakes that decrease the gradient and retain the overland flow are best technology available for erosion control. In steep sections, slope faces steepened at the top and concave toward the base integrated with low angle slopes are known to be successful.

The plan says, "Since a cut slope existed along portions of this area prior to mining there may not be enough material to completely eliminate the entire cut. In areas where cuts existed prior to mining, the (fill) material will be placed so as to backfill the cut to the extent possible. These areas are shown on Plates 3-2,". These areas are on the upper side of the roads that were constructed before mining and these same roads will be left after mining. Typically the cuts are 15 to 20 ft high with the maximum at one location of 30 ft. Such cut slopes are typical of early roads constructed in the area. Since the area is exposed bedrock, no impact has been noted nor is any anticipated.

Portals will be sealed with backfill beginning at the Blind Canyon portal and backfilling the cut slope as it is excavated from down slope side. A narrow access road will be retained for topsoil access. Topsoil will be placed on excavated areas and then the access road will be reclaimed (3-117 to 3-118). The amendment clarifies the reclamation for the Wild Horse Ridge Blind Canyon portal is separate from the portal west of Bear Creek. The #4 Mine auxiliary portal will be backfilled from inside the Tank seam workings, as described in APPENDIX 3-Q. [01/09/2006]

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

The Permittee has proposed no changes to the postmining land use, and information in the current mining and reclamation plan is considered adequate.

Findings:

Information in the application is adequate to meet the requirements of this section of the regulations.

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

Analysis:

The Permittee designed the reclamation plan to restore wildlife habitat by using plant species that will provide good forage and cover.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

The requirements for restoring a site to the approximate original contour (AOC) are couched in the backfilling and grading regulations. The only regulation that specially mentions AOC requirements is R645-301-553.110 that says:

> "Achieve the approximate original contour (AOC), except as provided in R645-301-553.500 through R645-301-553.540 (previously mined areas (PMAs), continuously mined areas (CMAs), and areas subject to the AOC provisions), R645-301-553.600 through R645-301-553.612 (PMAs and CMAs), R645-302-270 (non-mountaintop removal on steep slopes), R645-302-220 (mountaintop removal mining), R645-301-553.700 (thin overburden) and R645-301-553.800 (thick overburden)";

Since the Wild Horse Ridge site is a post-SMCRA underground site the Permittee must show that the AOC requirements can be met. Even if an AOC variance is granted, the Permittee must show that the site can be restored to AOC standards.

The Division's technical directive Tech-002 gives additional AOC guidelines. That guideline was also used to evaluate the Wild Horse Ridge site for AOC compliance.

Except as specifically exempted, all disturbed areas shall be returned to the approximate original contour. The final surface configuration shall closely resemble the general surface configuration of the land prior to mining. To evaluate compliance with this requirement, the term "surface configuration" must be clarified. Surface configuration refers to the premining and postmining topography of the mine site and surrounding area.

The term AOC does not mean that the land is restored to the original contours. Elevation of the premining and postmining site should only play a minor role if any in evaluating AOC.

The main criterion should be whether the postmining topography, excluding elevation, closely resembles the premining configuration. The Division evaluates premining and postmining topography on slope length and angle, and whether restoring the site to the original contours would violate other rules.

In some cases the Permittee cannot restore the site to the premining contours without violating other regulations, such as slope stability and erosion. Many of the natural slopes in the area are at the angle-of-repose. By definition when a slope is at its angle-of-repose the safety factor is 1.0. The minimum safety factor for reclaimed slopes is 1.3. If all slopes were returned to the premining conditions, the safety factor requirement could not be met.

When the natural slope has a safety factor less than 1.3, the Permittee usual opts to reduce the slope angle by either extending the toe or decreasing the height. Extending the slope's toe may block the drainage that violates other regulations. If the Permittee decreases the slope height then a cut slope will be left.

The premining and postmining cross sections for the Wild Horse Ridge project are in Appendix 3 O and are divided into the (1) Lower Conveyor Access Road; (2) Upper Conveyor Access Road; and (3) Mine Portal Area. The Permittee proposes to restore most of the site to the premining contours. However, some cut slopes will be left.

Post-SMCRA cut slopes do not have to be fully reclaimed, because they are not highwalls (portal face up areas). The Division does not have standards or regulations that deal with retention of cut slopes. The Division does allow cut slopes to be left after reclamation if they are stable and do not substantially increase the potential for safety or environmental problems.

The Permittee will backfill the site to the premining elevations whenever possible. In most cases the cut slopes will be in solid rock. The Division's staff reviewed the cross section in Appendix 3 O and found that the reclaimed slopes resemble the slopes in the surrounding area.

Under AOC guidelines all spoil piles must be eliminated. The Permittee claims that no spoil (excess material) will be generated from the Wild Horse Ridge project.

The Permittee committed to reclaim all highwalls. The premining and postmining contour maps suggest that all highwalls will be eliminated. The cross sections in Appendix 3-O show that all highwalls will be eliminated during final reclamation.

The AOC guidelines require that the restored drainages complement the surrounding natural drainages. The Division considers this requirement to be met if all the hydrologic regulations have been satisfied.

The AOC guidelines require that the reclaimed topography be compatible with the postmining land use, alternative postmining land use, or that a variance from the AOC requirements be granted. The Permittee did not ask for an AOC variance. The Division considers those to be met if all postmining regulations have been satisfied.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

The general backfilling and grading requirements are (1) achieve the approximate original contour; (2) eliminate all highwalls, spoil piles and depressions; (3) achieve a postmining slope that does not exceed the angle of repose or such lesser slopes as is necessary to achieve a minimum long term static safety factor of 1.3 and to prevent slides; (4) minimize erosion and water pollution both on and off site; and (5) support the approved postmining land use. The AOC, highwall elimination, erosion and water pollution, and postmining land use requirements have all been discussed in the AOC section of this technical analysis, refer to that section for more details.

The Permittee does not plan to produce any spoil material at the Bear Canyon Mine including the Wild Horse Ridge project. The postmining contour maps show that no depression will be left after final reclamation.

A Dames and Moore study investigated the slope stability for the reclaimed slopes. The information in the reports shows that all reclaimed slopes will meet or exceed the minimum safety factor requirements. The Division reviewed the report and found that it met the minimum requirements for slope stability studies.

The backfilling and grading requirements have some specific requirements. The only such requirement relative to the Wild Horse Ridge project is that all coal seams be backfilled adequately covered. All coal seams at the Wild Horse Ridge site will be covered and backfilled.

No small depressions or impoundments of any kind will be retained after final reclamation.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

MINE OPENINGS

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

Analysis:

The mine opening closure plan is given in Section 3.6.3.1 of the approved mining and reclamation plan. The plan is adequate for the mine openings at the Wild Horse Ridge.

The auxiliary portal associated with the #4 Mine which is located in the left fork of the right fork of Bear Canyon (entries connect the 1st West Bleeder to the surface) will require reclamation from inside the Mine, as there is no machinery access to this portal from the surface. The reclamation procedures are described in APPENDIX 3-Q, #4 Mine Auxiliary Portal. [01/09/2006]

Findings:

The amendment meets the minimum requirements of this section.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Chapter 2, Soil Resources, Sec. R645-301-231 and 242 and Chap 5 Sec. 542.200discuss the soil reclamation plan for the proposed Wild Horse Ridge area.

Redistribution

Table 2-2 provides an estimated topsoil replacement depth for each of the disturbed soil types. Table 2-7 itemizes the total acres to be recontoured by reclamation area (designated TS-1 through TS-17). Table 2-8 provides a summary of soil redistribution volumes by area. The total volume required is approximately 52,000 yd^3 for the 40-acre site. The average topsoil replacement thickness for the Wild Horse Ridge disturbed area should be 18 inches based on the 8700 yd^3 of soil salvage (Table 5J-1) from areas TS-12, TS-13, TS-14, and TS-15.

In Sec. 542.200 the Permittee states that coal fines will be removed from disturbed areas if not covered by grading activity and that coal fines will be removed to "pre-mining levels," which the Division understands to mean uncovering native soil. Methods to be used for coal removal include vacuuming (if justified by large quantities), or by washing down with a high-pressure water hose (effective on rock and rocky slopes). Disposal of the waste is described in R645-301-529.

Soil Nutrients and Amendments

Section 645-301-231.300, Nutrients and Amendments, states that following final grading, each of the reclamation areas will be sampled with composite samples taken from 0 to 2 ft and from 2 to 4 ft at each sample location. (See Table 2-9) The plan states that additional samples will be taken in the event that the initial sample indicates unsuitable material. In addition to analyzing the samples for micronutrients, analyses will also include standard fertility tests for pH, EC, nitrogen, phosphorus, and potassium. All sampling, testing and result interpretation will be done by a qualified soil scientist. Fertilization and chemical treatments will be applied according to the results of the soil sampling and analysis program.

Soil Stabilization

Following backfilling, the regraded surface will be scarified by a ripper to a depth of 14 inches to help reduce surface compaction, provide a roughened surface to help topsoil adherence, and help promote root penetration. Steep slope areas will be roughened by ripping to create ledges, crevices, pockets, and screens (talus slopes at the base of cliffs) to allow better soil retention and vegetation establishment.

To minimize compaction of replaced topsoil, travel on reclaimed areas will not be allowed. The Permittee will guard against erosion by using mulch, tackifier, and erosion control matting. Topsoil will be redistributed in the fall of the year to help promote vegetation establishment. In all cases, a very rough seedbed will be prepared.

Findings:

Information provided in the application is considered adequate to meet the requirements of this section of the regulations.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

Analysis:

Reclamation

In Section 3.6.12 of the Wild Horse Ridge amendment, the Permittee states that the portal pad access road will be backfilled. As fill material is placed on the access road, it will result in narrowing the road width, while backfilling the cut slope. Large diameter rocks will be

incorporated into the outslope created by filling to aid in surface stability. This procedure will be followed until most of the cuts are backfilled and the road has been narrowed to a "pilot cut" that will still allow the equipment access to the area. The pilot cut will then be reclaimed in the same manner as the Tank Seam Access Road described in Section 3.6.11.

In Section 3.6.3.3 the application says:

> "The mine access road below the No. 3 Mine Access Road will be regraded and fitted with post-mining diversion structures as shown on Plate 3-2. Diversion designs are shown in Appendix 7-H. Asphalt road surfacing material from the scale house pad will be excavated and disposed of at the Nielson Construction Landfill in Emery County. All roads that are to be reclaimed will be closed to traffic during reclamation. The reclaimed road design will be the same as the operational design, and is shown on Plate 3-5."

As backfilling and grading is completed, operational areas will be scarified by gouging to a depth of approximately 8 inches with a trackhoe. This will reduce compaction and prevent topsoil slippage, and improve soil retention and vegetation establishment in the gouges.

The road reclamation plan adequately addresses the requirements to close the roads to the public during reclamation, describes how the culverts will be reclaimed and disposal of road surface materials.

The Permittee did not address road closure during reclamation, or how the roads that provide access to the conveyors would be reclaimed, or the condition that the main access road will be left in and how the road surface material will be disposed and how the road will be scarified.

Retention

The Permittee states that those sections of the road that will be retained as part of the post mining land use will have the same design as the roads during operations.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Ground-water monitoring

The operational ground-water monitoring plan will continue through reclamation to bond release.

Surface-water monitoring

The operational surface-water monitoring plan will continue through reclamation to bond release.

Acid and toxic-forming materials

The operational surface-water monitoring plan will continue through reclamation to bond release.

Transfer of wells

No discussion on transfer of wells in the new permit area is provided. It is assumed all wells will be properly abandoned when no longer needed for mining.

Discharges into an underground mine

No discharges into an underground mine are proposed for reclamation purposes.

Gravity discharges

No discussion indicating gravity discharges is expected in relation to the Wild Horse Ridge reclamation.

Water quality standards and effluent limitations

No specific information is presented indicating how water quality standards and effluent limitations will be determined prior to bond release.

Diversions

Roads to be retained in place will be re-graded to the proposed post-mining configuration and fitted with diversions. A typical cross section is in 3.6.4. To maintain the road for post-mining land use, 11 culverts will be retained. The Wild Horse Ridge Access Road is proposed for retention for post-mining land use. Conveyor Access roads No.1 (lower road) and No.2 (upper road) are described in Appendix 3-O and will be reclaimed the same as described in Section 3.6.11 and 3.6.12 (3D-7A). Stream channel reclamation uses a riprapped channel design as presented in Appendix 7H. These appear to meet regulatory requirements.

Stream buffer zones

Construction in the buffer zone will be necessary during reclamation. The sequence of construction is designed for minimum sediment generation. Silt fences are used to control sediment.

Sediment control measures

All re-graded and top soiled areas will be mulched or otherwise treated to retain moisture and control sediment, page 4-13. Related surfaces will be ripped and scarified using a trackhoe that includes roughening to 8-12 inch deep pockets. See the section of this analysis discussing sedimentation ponds.

Siltation structures

See sedimentation ponds.

Sedimentation ponds

Sediment pond D is proposed to be removed during reclamation of the portal pad as described in Appendix 7-K, and Section 3.6.12, Wild Horse Reclamation Plan. The reclamation construction sequence describes the methods used during pad area reclamation to minimize sediment contributions to the drainage. These include installation of silt fences on the downstream sides of all construction areas, especially the portal pad area. After highwall removal, the road cut slope will be eliminated. A "pilot cut" will be retained to allow topsoil placement in the area. The pilot cut will then be reclaimed.

Other treatment facilities

No other treatment facilities are proposed in conjunction with the Wild Horse Ridge amendment.

Exemptions for siltation structures

No exemptions for siltation structures are requested in association with the Wild Horse Ridge amendment.

Discharge structures

No discharge structures are proposed for retention in association with the Wild Horse Ridge amendment.

Impoundments

See sedimentation ponds.

Casing and sealing of wells

No changes are made to the existing plan in conjunction with casing and sealing of wells. The existing plan adequately addresses this requirement.

Hydrologic Reclamation Plan

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

General

Contemporaneous reclamation is required as a performance standard. Since this is an underground operation, a schedule for contemporaneous reclamation is not required.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Revegetation: General Requirements

The MRP includes a three-phase plan: timetable, revegetation species and seed mix application rates, planting methods, mulching techniques, and revegetation success standards.

Table 3-5 provides the "Recommended Seed Mix (Seedlings!), Riparian-Creek Bottom", and Table 3-6 provides the "Recommended Seed Mix, Pinyon-Juniper-Grass". The titles of these tables are misleading and the Permittee will correct during the next technical review. [09152005]

The Permittee will add canyon sweetvetch to the final seed mix (Table 3-6). The Permittee will collect seed from local populations. The topsoil pile will also provide an additional seed source for this species.

The Permittee will cut willows nearby sources and plant in the riparian sites. The planting method will include planting willows at least every foot. The Permittee may need to return after a few years to plant supplemental willows. The Division recommends replanting in sites where sediment builds up over the years in the riprapped channels.

Revegetation: Timing

Table 3-4 provides a revegetation schedule. The Division recommends that the Permittee plant containerized seedlings in the fall and bare-root cuttings in the spring (if the area is accessible and the spring weather is wet).

Revegetation: Mulching and Other Soil Stabilizing Practices

The MRP provides information on backfilling and grading, gouging, and seeding as well as methods for reclaiming steep slopes.

The Permittee may hydroseed and apply wood fiber mulch. The Division cautions the Permittee that the application of too much wood fiber at the time of seed application may reduce seed to soil contact. This reduction may reduce seeding success. The Division recommends hydroseeding with a wood fiber binder (small amount), followed by applying wood fiber mulch.

Revegetation: Standards For Success

The Permittee will follow sampling requirements identified in the Division's "Vegetation Information And Monitoring Guidelines" (p. 3-15). The Permittee will conduct yearly qualitative vegetation evaluations as well as conduct quantitative vegetation surveys throughout the 10-year responsibility period. Regulations require quantitative vegetation surveys during years nine and ten (refer to R645-301-357.200). However, the Division recommends additional quantitative surveys, within the 10-year period, in order to provide the necessary data to meet Phase II and III bond release standards.

The Division recommends additional quantitative surveys to those stated in the regulation (refer to R645-301-357.200). The Permittee plans to survey many times during the responsibility phase. The Division, however, provides some recommendations that may help the Permittee achieve Phase II and III bond release. The Permittee may consider rearranging some of the monitoring schedules to include monitoring shrub density at years 4 and 8 following the last augmentation. The 4th and 8th year shrub density surveys are for areas designated as wildlife for the PMLU. The 4th year results do not need to meet the 90% requirement, but the survey is needed to demonstrate that at least 80% of the shrubs and trees have been in place for 60% of the responsibility period (refer to R356.232). The 8th year survey is needed to demonstrate that no shrubs or trees have been in place for less than two growing seasons (refer to R356.232). The Permittee's monitoring schedule does not indicate plans to monitor during these recommended years. This is not considered a deficiency, however, since the regulations do not require including these years as part of a monitoring schedule.

The effectiveness of vegetation for approved postmining land use and extent of cover compared to the extent of cover of the reference area determines revegetation success. Any negative impacts to the reference area may confound statistical comparisons and analysis.

The Permittee commits to meet diversity standards with application and successful growth of the species in the final seed mix. The Permittee will provide additional plantings of seedlings to contribute to diversity for the riparian areas.

The Division, in consultation with DWR, established the woody plant density at 1010 woody plants per acre. This density should meet the goal of the PMLU even though the reference area had a higher density at the time of the baseline survey.

The husbandry practices approved by the Division will be applied as needed.

Findings:

Information in the application is adequate to meet the requirements of this section of the regulations.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

The Permittee plans to gouge the regraded pad area, tank seam, conveyor access road slopes and the Wild Horse Ridge topsoil storage site ASCA to an 8-inch depth on the pad areas (Sec. 542.200 and Appendix 7-K).

The Permittee should investigate the use of deeper gouging, to depths of 18 - 24 inches on the reclaim site. Deep gouging has been used successfully on reclamation sites through out Utah and has been described in The Practical Guide to Reclamation in Utah, page 66. This publication is available on the web at http://www.dogm.nr.utah.gov

Mulching is described in Section R645-301-341 page 3-41 as well as Section 542.200. The Permittee intends to use excelsior blanket on slopes of 2h:1v.

Section 542.200 indicates that rocks will be embedded into the upper surface as described on page 5H-27 (in a May 10, 1994 letter from Dames and Moore). The goal will be to obtain a minimum cover of 32% rock, similar to the reference area. Wind protection through the use of boulders is also described in R645-301-412.110 Method for Achieving Post-Mining Land Use.

Findings:

The information provided meets the requirements of the regulations to provide stabilized surface areas.

CESSATION OF OPERATIONS

Regulatory Reference: 30 CFR Sec. 817.131, 817.132; R645-301-515, -301-541.

Analysis:

The plan for cessation of the operation is part of the approved mining and reclamation plan.

Findings:

The information provided meets the requirements of this section.

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

Affected Area Boundary Maps

The Permittee did not give the Division an affected area boundary map. The Division usually considers the permit area to be equal to the affected area. Plate 2-1 is the permit area map, and the Division found that the map accurately shows the permit boundaries.

Bonded Area Map

The Division usually considers the bonded area to be equal to the permit area. Plate 3-2A, Plate 3-2B and Plate 3-2F show the disturbed area boundaries during reclamation.

Reclamation Backfilling And Grading Maps

The Permittee must give the Division detailed maps that show how the backfilling and grading requirements will be met. The specific items missing from maps and cross sections are: the location of the highwalls, cut slopes and coal seams.

Reclamation Facilities Maps

The Permittee gave the Division detailed maps of all reclaimed facilities including the access road.

Final Surface Configuration Maps

The Permittee gave the Division detailed maps and cross sections that show the final surface configuration.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

General

The surety bond on file for the Division covers Exhibit A, the permit area. This area has been enlarged to include all of sec 24 T16 S R 7 E. [09162005]

Determination of Bond Amount

Demolition:

The Division calculated the demolition and disposal costs as outlined in the OSM Reclamation Cost Handbook and according to standard Division practices. Those procedures are outlined as follows:

- The Division does not allow salvage value in the reclamation cost estimates.

- The Division will allow the cost of steel disposal to be based on the transportation cost to a scrap dealer.

- Because the disposal fees for landfills are site-specific, the Division will base those fees on local landfills provided the costs can be documented. The Permittee has the obligation to provide that information. The Division assumes that all non-steel and non-concrete demolition will be shipped to the Neilson landfill.

- If the approved mining and reclamation plan states that some type of debris can be disposed of on site then the on-site disposal fees must be included. On site disposal fees, should be included to cover the cost of transporting the debris to a disposal site and backfilling and covering the debris.

The Division and the Permittee reviewed and agreed upon the demolition costs. See the bond cost estimate for more details.

Earthwork:

- Tank Seam Access Road and Portal Pad: No material will be imported or exported from this site. A total of 20,310 yd^3 will be cut and then used as fill. Approximately 9,649 yd^3 of material will be cut and filled in one operation with an excavator. The amount of material to be hauled by truck within the site is 10,661 yd^3. The Permittee assumed that the material to be hauled will be loaded by an excavator onto a 10 yd^3 dump truck. Once the material has been trucked an excavator will place it.

- Upper Storage Pad: The amount of fill needed is 8,083 yd^3. Local cuts will produce 6,447 yd^3, and the remaining fill will be shipped from the coal storage pad. The cut and fill operation is assumed to be a continuous operation with an excavator. Placing the imported fill will also be done with an excavator. The transportation costs for hauling the fill from the coal storage pad will be calculated in the coal storage pad subsection.

- Portal Pad Area & Road: The amount of fill needed is 7,908 yd^3. Local cuts will produce 6,648 yd^3, and the remaining fill will be shipped from the coal storage pad. The cut and fill operation is assumed to be a continuous operation with an excavator. Placing the imported fill will also be done with an excavator. The transportation costs for hauling the fill from the coal storage pad will be calculated in the coal storage pad subsection.

- Portal Pad Area: The amount of fill needed is 7,908 yd^3. The fill material will come from on site and the coal storage area if needed. The cut and fill operation is assumed to be a continuous operation with an excavator. Placing the imported fill will also be done with an excavator. The transportation costs for hauling the fill from the coal storage pad will be calculated in the coal storage pad subsection.

- Portal Access Road: The amount of fill needed is 9,167 yd^3. The fill material will come from on site and the coal storage area if needed. The cut and fill operation is assumed to be a continuous operation with an excavator. Placing the imported fill will also be done with an excavator. The transportation costs for hauling the fill from the coal storage pad will be calculated in the coal storage pad subsection.

- Lower Road to Switchback: The amount of cut and fill material needed is 4,028 yd^3. The cut and fill amounts balance, so no material will be imported or exported from the site. The Permittee assumes that all cut and fill operations can be done with an excavator.

- Tipple Access Road: The amount of cut and fill material needed is 1,167 yd^3. The cut and fill amounts balance, so no material will be imported or exported from the site. The Permittee assumes that all cut and fill operations can be done with an excavator.

- Coal Storage Pad: The site has 19,453 yd^3 of cut material and needs 15,333 yd^3 of fill material. The on site cut and fill operation will be done with a bulldozer. The loading and trucking of material will be done with a front-end loader and dump trucks.

- Scale House: The amount of cut and fill material is 711 yd^3. The cut and fill amounts balance, so no material will be imported or exported from the site. The Permittee assumes that all cut and fill operations can be done with a bulldozer.

- Sediment Pond A: The amount of cut and fill material is 1,556 yd^3. The cut and fill amounts balance, so no material will be imported or exported from the site. The Permittee assumes that all cut and fill operations can be done with a bulldozer.

- Sediment Pond B: The amount of cut and fill material is 1,167 yd^3. The cut and fill amounts balance so no material will be imported or exported from the site.

The Permittee assumes that all cut and fill operations can be done with a bulldozer.

- Sediment Pond C: The amount of cut and fill material is 324 yd^3. The cut and fill amounts balance, so no material will be imported or exported from the site. The Permittee assumes that all cut and fill operations can be done with a bulldozer.

- Shower House: The amount of cut and fill material is 3,426 yd^3. The cut and fill amounts balance, so no material will be imported or exported from the site. The Permittee assumes that all cut and fill operations can be done with a bulldozer.

- Wild Horse Ridge Portal Area: The amount of cut and fill material is 10,288 yd^3, with and additional 4,860 yd^3 of topsoil that will be imported. The Permittee assumes that all cut and fill work will be done with a bulldozer. The topsoil will be loaded with a front-end loader and haul in dump truck to the site. All topsoil will be spread with a bulldozer.

- Wild Horse Ridge Upper Access Road: The amount of cut and fill material is 1,912 yd^3 with 2171 yd^3 of topsoil to be imported. The Permittee assumes that the material can be moved with a bulldozer. The topsoil will be loaded with a front-end loader and haul in dump truck to the site. All topsoil will be spread with an excavator.

- Wild Horse Ridge Upper Access Road: The amount of cut and fill material is 2,947 yd^3. The Permittee assumes that half the material can be moved with a bulldozer and the other half with an excavator.

The Division and the Permittee reviewed and agreed on the earthwork costs. See the bond calculations for more details.

Vegetation Costs:

The vegetation costs were based on the following:

- The approved mining and reclamation plan and the proposed addition of the Wild Horse Ridge area. In addition a Division biologist review the reclamation cost estimate.

- The revegetation rate would be 25%.

- Seeds and seedlings costs were based costs for purchasing them from local dealer. Since these costs can fluctuate on an annual basis the Division will continually review the costs and make adjustments as needed.

Indirect Costs:

The indirect costs that the Division calculates are as follows:

- Startup Costs: The startup costs include mobilization/demobilization, permits, insurance and bonds. **The Division assumes that the startup costs for a reclamation project are 10% of the direct costs**. The 10% amount is based on a flat rate stated on Page 23 of the OSM's *Handbook for Calculation of Reclamation Bond Amount Revised April 2000.* The OSM handbook did not include a reference for the 10%. That amount is verified by AML costs.

- Contingency: The contingency amount is listed in the section entitled "How to Use the Book: The Details" in the R. S. Means Company, Inc. publications. For example see Page vii of the 14th Edition of the R. S. Means Heavy Construction Cost Data 2000. The contingency range in the year 2000 is 5% to 10%. **Therefore, the Division will use the low range of 5%.**

Note: The contingency fee is for items that will be encountered but have not yet been identified in the permit application, Mining and Reclamation Plan, proposed amendments or significant revisions.

- Engineering Redesign Fee: The engineering redesign fee is the line item identified in the R. S. Means Company, Inc. publications by the reference number 01107 3000 0800, also known as Landscape & Site Development, minimum. **The minimum engineering redesign fee for the year 2000 is 2.5%.**

- Main Office Expense: The cost for the main office expense is shown as line items in the R. S. Means Company, Inc. publications. Main office expense cover costs that are not directly incurred for a specific project but are needed by the contractor to operate. Examples of main office expense include, but are not limited to, administrative costs, building rental, equipment storage areas, and certain types of insurance and taxes. The following reference numbers are used to calculate main office expenses: 01310 400 0130, 01310 400 0150, 01310 400 0200, 01310 400 0250 and 01310 400 0300 depending on the direct costs. The indirect costs are 8% up to $1,000,000, **6.8% up to $4,000,000,** 5.6% up to $7,000,000 and 5.10% up to $10,000,000 and 3.9% for more than $10,000,000 for the year 2000.

- Project Management Fee: The project management fee is the line item identified in the R. S. Means Company, Inc. publications by reference number 01107 200 0050 and 01101 200 0050 depending on the direct costs. The costs are 4.5% for direct costs up to $1,000,000 and **2.5% for direct costs of up to $5,000,000** for the year 2000.

Inflation:

The Division uses the three-year average for the escalation factor from the Means Historical Cost Index for Utah. The Division will escalate the demolition and earthwork costs to the end of the permit term (maximum of 5 years).

Terms and Conditions for Liability Insurance

No new insurance will be required for the addition of the Wild Horse Ridge project.

Findings:

Information provided in the application is adequate to meet the requirements of this section of the regulations.

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

Analysis:

The IBC is within the current Gentry Mountain CHIA. The CHIA does not need to be updated. [09212005]

Findings:

The current CHIA is sufficient to meet the requirements of the R645 Rules. [09212005]

APPENDICES

SUMMARY OF COMMITMENTS

The summary below presents a list of commitments stated within the mining and reclamation plan (MRP). This list provides the following information for each commitment, when applicable:

- Title.
- Objective.
- Frequency.
- Status.
- Reports.
- Citation.

BEGIN COMMITMENT LIST BELOW

PERMIT INFORMATION TABLE

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